

DESKTOP MANAGER



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INC



DESKTOP MANAGER

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If you need technical support for PC Tools Deluxe, please call (503) 690-8080. Our support hours are 6-5 PST.

Keep a copy of your registration number for future reference.

Customer Name: _____

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About this Manual

The PC Tools Desktop manual has the following chapters:

- An *Installation* chapter for setting up your system.
- A *Getting Started* chapter that explains the user interface.
- A chapter for each PC Tools Desktop application.
- An appendix explaining memory-resident programs.
- An appendix with Technical Support information.

Because not everyone will want or need to use all the PC Tools Desktop applications, the chapters are arranged so that you can quickly get started using any application by turning to the appropriate chapter to learn how to open the application and use the commands.

Typographic Conventions

The actual keys you press appear like this: ALT-R. For example, ESC means to press the Escape key. Hyphens between keys tell you to press them simultaneously.



The keyboard symbol indicates a procedure where you use keystrokes.



The mouse symbol indicates a procedure where you use the mouse.

Information that you enter from the keyboard appears like this:

DESKTOP /R

Numbered lists (1, 2, etc.) indicate a procedure with two or more sequential steps.

This symbol (□) means a procedure follows.

File names are in all caps: DESKTOP.EXE

Parameters are written using the following conventions:

- Brackets indicate optional terms you may omit. Do not enter the brackets.
- Drives and other variables are in lower case and italic
- Switches are bold and uppercase

For example:

PCFORMAT *d*: [/S] [/1] [/8] [/V] [/4] [/N:xx] [/T:yy] [F:nnnk]

1. Getting Started

PC Tools Desktop is a complete desktop organizer with full keyboard or mouse support, pull-down menus with moveable and resizable windows, and full color control. PC Tools Desktop uses less than 40K of memory and can be run as a memory-resident application, enabling the PC Tools Desktop applications to be available at all times, or as a standard DOS application; the choice is yours.

PC Tools Desktop provides you with the following features:

- an intuitive and easy-to-learn user interface
- online help for quick answers and guidance
- full mouse and keyboard support
- memory-resident or standard DOS program, whichever you prefer

Your distribution disk contains several example files (called SAMPLE) to accompany the manual's explanation.

PC Tools Desktop contains the following nine applications:

Notepads	A word processor that can move blocks of text, globally search and replace, check spelling, and read standard ASCII text and WordStar files.
Outlines	Helps you to organize your thoughts in outline form with full editing capability. You can collapse and expand headings and indent for multiple levels.
Databases	Organizes and manages information with multiple sorting capabilities, uses dBASE compatible data files, optionally displays and prints in phonebook-like display, and includes an automatic phone dialer.

Appointment Scheduler	Creates appointment schedules and to-do lists. You can display a day or a week's schedule, check for conflicts, and set alarms to remind you. Alarms can optionally run a macro to do such things as pop up a notepad with meeting notes, pull up a database record and dial a phone number, run a telecommunications script to transfer a file, or run a program at night when you are not there (such as PC Tools Compress, which will unfragment your hard disk).
Modem Telecommunications	Easy access to MCI, CompuServe, EasyLink, and any online service you want to add. Allows you to send and receive data and program files, uses scripts to automate file transfers and also allows you to work in the background so you can transfer files while you continue to work in another application.
Fax Telecommunications	Allows you to send and receive faxes using an Intel fax board in a network or your PC.
Macro Editor	Allows you to record and save commonly used keystroke sequences that you can replace with a single keypress.
Clipboard	Temporary storage space for copying and pasting text within PC Tools Desktop or other applications.
Calculators	Includes algebraic, financial, scientific, and programmer's calculators. The financial calculator is patterned after the Hewlett-Packard HP-12C, the scientific calculator is patterned after the HP-11C, and the programmer's calculator is patterned after the HP-16C.

Utilities

Lets you select your PC Tools Desktop hotkeys, display an ASCII character table with IBM graphics characters, change system colors, and unload PC Tools Desktop from memory.

Autodialer

Allows you to dial a phone number appearing on the screen inside or outside of PC Tools Desktop.

If you purchased PC Tools Deluxe from a dealer or mail order company, please take a moment now to fill out and send in the registration card. If you purchased PC Tools Deluxe directly from Central Point Software, you are already registered as an owner, so you don't need to return the registration card. Being a registered owner entitles you to technical support and lets us tell you about product updates. When PC Tools is updated, all registered owners can purchase the update at a greatly reduced price.

Technical Support

If you need technical support for PC Tools Deluxe, please call (503) 690-8080. Our business hours are Monday-Friday, 6 am - 5 pm PST. Please read the *Technical Support* appendix and complete the Technical Support Checklist before placing your call.

Where to Reach Us, located at the back of this manual, lists technical support telephone numbers to call if you are in Europe or the UK.

Additional PC Tools Deluxe Information

For information on last-minute changes to the program that was not included in the manual, read the README.TXT file (if one is included). Reviewing this information ensures that you have the most current information possible about the programs.

2. Installation

Hardware Requirements

PC Tools Desktop is designed to work with the IBM PS/2 (all models): PC, XT, AT, and most IBM-compatible computers. Your computer should have at least 512K of memory. If you want to keep PC Tools Desktop “resident” in memory while other programs are running, it’s a good idea to have 640K of memory. You need only one disk drive, although PC Tools Desktop can also work with multiple disk drives, and works best with either a hard disk or at least 400K of EMS memory.

To start up PC Tools Desktop, you need to boot your computer with version 3.0 (or higher) of DOS. (We recommend that you use DOS 3.2 or higher.) Once PC Tools Desktop is running, it can work with disks formatted by any version of DOS.

***Note:** We have made a great effort to make PC Tools Desktop and PC Shell compatible with other resident programs. PC Tools Desktop is very “well-behaved” in its operation while some other resident programs are not. If you experience any problems with PC Tools Desktop and other resident programs, try changing the order in which your resident programs are loaded. (We’d also appreciate knowing which programs you had trouble with.) See the appendix entitled Memory-Resident Programs for more information.*

Mouse Users

PC Tools Deluxe is designed to perform optimally with a mouse. If you want to use a mouse, you must have its driver installed *before* PC Tools Shell or PC Tools Desktop in your AUTOEXEC.BAT or in your CONFIG.SYS file. See your mouse documentation for more information. If you are using a Microsoft mouse, then you should have version 6.14 or higher of the Microsoft Mouse driver. If you are using a Logitech/Dexxa mouse, you should have version 3.4x or higher of the mouse driver. Older mouse drivers may not work with all PC Tools Deluxe applications.

Installing to a Hard Disk

You must install PC Tools Desktop on your hard disk using Install.

2. Installation

Install

Install is an installation program that installs PC Tools Desktop and other PC Tools utilities onto your hard disk based on the choices you make. The process is easy: you merely need to follow the instructions on the screen. You must run Install to install PC Tools Desktop files to your hard disk, because the files are compressed, and Install decompresses them.

❑ To run Install:

1. Insert disk number 1 in drive A.
2. If you are not at the A: prompt, type A:
3. At the A>, type INSTALL, then press ENTER.
4. Follow the instructions on the screen.

Note: If you use a floppy drive other than drive A, use the letter of that drive in the preceding procedure.

Running on a Network

Important: You must purchase a copy of PC Tools Deluxe for every station on the network that has access to the PC Tools Deluxe programs or contact us to purchase a Network or Site license.

The PC Tools programs can be installed in a write-protected directory on a Novell NetWare or IBM LAN network server. They can then be run from any station on the network that has access to the files on the server. You (or your network supervisor) will need to make sure that the PC Tools server directory is in your path. In addition, you will need to set an environment variable, "PCTOOLS", specifying where PC Tools should put all user-specific files (dictionary, color information, etc.). This needs to be a directory that is unique for each user and that the user has write privileges to. This environment variable is either added to the station's AUTOEXEC.BAT file or is done at the supervisor level on the network. If it is done in the station's AUTOEXEC.BAT file, it should look like this:

```
SET PCTOOLS="drive:\\PCTOOLS\\%LOGIN_NAME"
```

Where "drive" is replaced with the drive letter. Be sure that you capitalize LOGIN_NAME and include the quote marks and double backslashes, or you may get an error message.

The first time that PC Tools Desktop is run, it will copy the following files from the server directory to the directory specified by the PCTOOLS environment variable:

DICT.SPL	EPSON.PRO
DESKTOP.OVL	HPLJF.PRO
PHONE.TEL	PROPTR.PRO
CPS.SCR	SAMPLE.PRO
CIS.SCR	SAMPLE.DBF
MCI.SCR	LETTER.FOR
ESL.SCR	SAMPLE.FOR
PANA.PRO	SAMPLE.TXT
FAX.MSG	TELECOM.DBF
	SAMPLE.OUT

Network Supervisors

If you are setting up PC Tools Desktop on a Novell NetWare network, you should make the PC Tools directory path available to all users, and also use a system login script to define the PCTOOLS environment variable for all users. For example:

```
SET PCTOOLS="H:\HOME\%LOGIN_NAME"
```

where the directory below "home" has the same name as a user's login name and the user has full write privileges.

You can use Install to install the PC Tools programs in a write-protected directory on a Novell NetWare or IBM LAN network server. They can then be run from any station on the network that has access to the files on the server. When installing to a network, Install will not make any modifications to an AUTOEXEC.BAT file or install any applications, other than the requested PC Tools applications, into PC Shell's application list.

If PC Tools is installed on a Novell NetWare server by a supervisor and if the supervisor sets up the path and environment variable for all users, Install does not need to be run by each station user.

PC Tools Desktop Files

The following files found on your distribution disk are used by PC Tools Desktop. They are required to execute the program and should not be deleted.

DESKTOP.EXE	Main Desktop program
DESKTOP.HLP	Help file
ASCII.OVL	ASCII table utility
CALC.OVL	Algebraic Calculator
DBMS.OVL	Database Manager

2. Installation

FINCALC.OVL	Financial Calculator
SCICALC.OVL	Scientific Calculator
HEXCALC.OVL	Programmer's Calculator
HOTKEY.OVL	Hotkey utility
INKILL.OVL	Desktop removal utility
RECOLOR.OVL	Screen colors utility
SPELL.OVL	Spelling checker
TALK.OVL	Telecommunications
TIME.OVL	Appointment Scheduler
FAX1.OVL	Send Fax Telecommunications
FAX2.OVL	Fax Log Telecommunications
FAX.CFG	Send Fax and Fax Log configuration file
ITLFAX.EXE	Fax Telecommunications link to Intel fax boards
PCTOOLS.PCX	Logo file that gets attached to COVER.TXT for sending faxes
FAX.PHO	Fax Telecommunications directory
COVER.TXT	Fax cover page
BACKTALK.EXE	Background communications
DICT.SPL	Spelling checker dictionary
DSKERR.DBF	System messages
KILL.EXE	Removes PC Tools resident programs
PHONE.TEL	Modem Telecommunications phone numbers directory
TELECOM.DBF	Databases file with names and numbers for Modem Telecommunications

The following sample files have been supplied and, if you are short on disk space, can be deleted:

SAMPLE.DBF	Sample Database
SAMPLE.FOR	Sample database form
LETTER.FOR	Sample form letter form
SAMPLE.OUT	Sample Outline
SAMPLE.TXT	Sample Notepads
SAMPLE.FAX	Sample Fax
SAMPLE.MAI	Sample electronic mail

SAMPLE.TLX	Sample telex
EPSON.PRO	Epson printer macros
HPLJF.PRO	HP LaserJet printer macros
PANA.PRO	Panasonic printer macros
PROPTR.PRO	IBM Proprinter macros
SAMPLE.PRO	Sample macros used in examples
CPS.SCR	Central Point Software Bulletin Board "log on" script
CIS.SCR	CompuServe "log on" script
ESL.SCR	Easylink "log on" script for fax and mail services
MCI.SCR	MCI Mail "log on" script for fax and mail services

In addition, the files listed below are NOT found on the distribution disk, but are created as needed by PC Tools Desktop.

DESKTOP.CFG	Configuration file (saves colors and windows)
DESKTOP.IMG	Desktop video RAM temporary file (resident mode only)
DESKTOP.THM	Swapped memory area (resident mode only)
DESKTOP.OVL	Desktop overlay (resident mode only)
MACROS.OVL	Macro data
TALK.CFG	Telecommunications configuration
*.REC	Database record file (has same name as your database file)
LEARN.PRO	Macros created in Learn Mode
*.TM	Appointment schedules
TRANSFER.LOG	Captured transmission using background communications with the XMODEM protocol
CALC.TMP	Saves Algebraic Calculator tape computations
SCICALC.TMP	Saves the values stored in the Scientific Calculator registers
HEXCALC.TMP	Saves the values stored in the Programmer's Calculator registers
STACK.CFG	Configuration file that stores window-related information

PC Tools Desktop Parameters

The following parameters are available when starting PC Tools Desktop. These parameters are optionally added to the command line at the DOS prompt when executing PC Tools Desktop.

/350 Displays in 350 line resolution if you have a VGA display. This will make the background screen and the scroll bars in PC Tools Desktop continuous, but it may have the effect of reducing the size of the screen on some VGA adapters. This parameter also works with PC Shell.

/BW Produces a better screen display when using a color card with a monochrome monitor. /BW can be used in either stand-alone or resident mode to improve its appearance.

/CS Clears the screen and displays a background pattern when PC Tools Desktop is running in memory-resident mode. When PC Tools is running as a stand-alone application, the background automatically comes up.

/C3 or /C4 = IRQ,Base Port Address Tells the Autodialer and the Telecommunications program which serial port your modem is connected to. Since COM3 and COM4 are not standard, they must be defined on the command line with a parameter: /C3 or /C4 = IRQ,Base Port Address (for example, /C3=4,3E8). Refer to your modem manual for the IRQ and Base port address. This parameter is not necessary on PS/2s.

/DQ When PC Tools Desktop is hotkeyed into, it must save the memory being used by the currently running program in a disk file before it can load its program file into memory. This naturally takes time. To make PC Tools Desktop load faster, it will not save memory when it is hotkeyed into from the DOS prompt because there is no program running.

If you experience any problems when you hotkey into PC Tools Desktop from the DOS prompt, use the /DQ parameter when you install PC Tools Desktop to disable the quickload capability at the DOS prompt.

/IN If you have a Hercules InColor card and want to run PC Tools Desktop resident and in color, use the /IN parameter. Using the Hercules InColor card with resident programs often causes screen color conflicts. If you do not use the /IN parameter, PC Tools Desktop will come up in black and white mode. When running PC Tools Desktop in non-resident mode

with an InColor card, PC Tools Desktop will come up with its normal colors.

/IM Disables the mouse when using PC Tools Desktop. Use this parameter if you have an old Microsoft Mouse driver or are experiencing problems with a mouse supported application, after hotkeying out of PC Tools Desktop. Due to a lack of support in some older mouse drivers, memory-resident programs may have no way of knowing how the mouse driver was set up for a previous application. Hotkeying into and then out of PC Tools Desktop may cause the loss of mouse support in the current application. By using the **/IM** parameter, the mouse will be disabled in PC Tools Desktop, but keyboard functions will continue to operate normally. The mouse will not be affected in your underlying program.

***Note:** If you have problems with the mouse after entering PC Tools Desktop, it is most likely due to using an older-style driver. You can use the **/IM** parameter, but we recommend that you contact your mouse manufacturer to get an upgrade.*

/LE Exchanges the left and right mouse button functions to accommodate left-handed people.

/LCD Used on computers with LCD displays (usually laptops) to set the screen colors.

/MM Allows you to run PC Tools Desktop without loading any applications that were on the stack the last time PC Tools Desktop was run resident. This parameter is useful if you want to run a specific PC Tools Desktop application from another program, such as launching PC Tools Desktop applications from PC Shell.

/Od Selects a different drive to contain the PC Tools Desktop overlay files. Normally, PC Tools Desktop will use the default drive (the drive PC Tools Desktop is executed from) to build its overlay files (DESKTOP.OVL, DESKTOP.IMG and DESKTOP.THM). This can be changed by using the **/O** parameters, which forces PC Tools Desktop to place its overlay files on the drive specified in the **/O** parameter, for example, a RAM disk. Building the overlay files on a RAM disk may help speed up program execution. This parameter may also be used to disable the use of expanded memory for overlay files by explicitly directing the overlay files to another device. If you are directing the PC Tools Desktop files to a RAM disk, you need to

2. Installation

have at least 450 kilobytes of memory. If you plan to direct both PC Tools Desktop and Shell to a RAM disk, you need minimum of 1000 kilobytes of memory.

There must be enough space available on the RAM disk to hold the overlay files. If there is not enough space, the default drive will be used.

/R Runs Desktop in its memory-resident mode. Running Desktop memory-resident will allow you to bring it up while other programs are running by pressing the CTRL-SPACEBAR hotkey.

/RA By installing PC Tools Desktop with the /RA parameter instead of /R, PC Tools Desktop will come up as if you had hotkeyed into it, and the Appointment Scheduler will display today's schedule and To-Do list. At this point PC Tools Desktop is fully functional. If you do not have an active Appointment Schedule file with appointments set, PC Tools Desktop will come up as if you had installed it with the /R parameter.

Note: *If you have PC Tools Desktop installed in your AUTOEXEC.BAT file using this parameter, it should be the last entry in the file because everything that follows it will not be executed until PC Tools Desktop is exited.*

3. About PC Tools Desktop

This chapter is an overview of the PC Tools Desktop interface. It is recommended that you read this chapter thoroughly before continuing. Although the applications contained in your PC Tools Desktop package perform very different tasks, they have the same user interface and window environment to make them easy to learn and use.

To use PC Tools Desktop, it is assumed you are familiar with MS-DOS or IBM PC-DOS, and know about files, file names, and extensions, and how to use the common DOS commands. You need to know how to boot DOS (answer the date and time questions if necessary) to get the DOS prompt (A> or C>). If you need to know more about these, please refer to your Disk Operating System manual.

Starting PC Tools Desktop

The following example assumes that you are in the PCTOOLS directory (where PC Tools Desktop is installed) or that you have the PCTOOLS directory in the path statement of your AUTOEXEC.BAT file.

If you installed Desktop resident when you ran Install, then Desktop is ready for you to use by pressing the CTRL and SPACEBAR keys together. This is the standard PC Tools Desktop hotkey. (Hereafter, when you need to press keys together, you'll see Key - Key.)

If you did not install Desktop resident when you ran Install, you have the option of running it as a standard (or stand-alone) DOS application or as a memory-resident application.

Important: *You can choose either memory-resident mode or stand-alone mode, but you cannot start PC Tools Desktop as a stand-alone application once it has been installed memory-resident.*

Starting PC Tools Desktop Stand-Alone

Using PC Tools Desktop as a stand-alone application gives you the advantage of not tying up any system memory when you're not using it. If you want to run PC Tools Desktop as a standard DOS application, type the following at the DOS prompt:

```
DESKTOP
```

3. About PC Tools Desktop

Starting PC Tools Desktop Memory-Resident

This starts the standard DOS version.

Note: You can also type in DESKTOP to run PC Tools Desktop even if it is already resident.

Running PC Tools Desktop as a memory-resident application has the following advantages:

- You have access to macros anywhere you are working.
- You can use alarms in the Appointment Scheduler.
- You can hotkey in and out of PC Tools Desktop while running any other application.
- You can use the Clipboard to copy and paste text into other applications.

Type the following at the DOS prompt:

```
DESKTOP /R
```

This starts the memory-resident version.

Wait a moment for PC Tools Desktop to load into memory, then the following is displayed on your screen:

PCTOOLS Desktop (tm)
Personal Computer Desktop Manager
Version 6

Copyright (c) 1988-1990 Central Point Software, Inc.
All rights reserved
393 Kbytes free 15 Stackable windows

To activate PCTOOLS Desktop, press <CTRL><SPACE>

Press the CTRL - SPACEBAR hotkey to start PC Tools Desktop.

Using the Hotkey

The term "hotkey" is used when calling up a memory-resident program or function. You may press the default hotkey (CTRL - SPACEBAR) to activate PC Tools Desktop at any time, once it is loaded as a memory-resident program. The hotkeys in PC Tools Desktop are user definable, so you may choose other hotkeys to activate PC Tools Desktop. The procedure to change the hotkey selection is discussed in detail in the *Utilities* chapter.

Note: You do not have to exit all your PC Tools Desktop applications prior to hotkeying back to DOS. The PC Tools Desktop hotkey is always active. If you hotkey out to DOS, then hotkey back into PC Tools Desktop, all your windows are loaded just the way you left them.

Memory-Resident

Running PC Tools Desktop memory-resident will allow you to bring it up from within other programs. For example, if you were working in your spreadsheet application and wanted to write a note in Notepads, you could hotkey into PC Tools Desktop, choose Notepads, write the note, and continue where you left off, back in the spreadsheet.

Using Expanded Memory

When you hotkey into PC Tools Desktop, it will automatically load the DESKTOP.THM overlay file into expanded memory (LIM compatible), if available, to hold the image of the underlying application. If expanded memory is insufficient or non-existent, then the image file (or the portion that won't fit in expanded memory) is placed in the DESKTOP.THM file on disk. The EMS memory is freed when you hotkey out of PC Tools Desktop. The other PC Tools Desktop overlay files do not use expanded memory because these files are permanently allocated when PC Tools Desktop is installed and would require permanent use of expanded memory. You must have your expanded memory driver installed in your CONFIG.SYS file before loading PC Tools Desktop. PC Tools Desktop will only use as much expanded memory as it needs and will free up as much as possible when not in use.

When you execute PC Tools Desktop, it looks for its files in the following order:

- If you are using DOS 3.0 or higher, it looks in the directory from which PC Tools Desktop was executed; then
- it looks in the current directory. If not found
- it looks in the PCTOOLS subdirectory. If not found
- it looks in the root directory.

Removing PC Tools Desktop from Memory

Once PC Tools Desktop has been run as a memory-resident application, it can be removed from memory with the following command:

KILL

3. About PC Tools Desktop

PC Tools Desktop Shortcut Keys



This command also removes PC Shell (plus BACKTALK) from memory if they were the last memory-resident programs you loaded.

The F1 (Help), F2 (Help Index), F3 (Escape), F9 (Swap windows), and F10 (Activates the PC Tools Desktop main menu) keys are globally available in PC Tools Desktop applications. In addition, the F4, F5, F6, F7, and F8 keys are defined to provide shortcuts in PC Tools Desktop applications, although not all of the function keys are used in all applications. When shortcut keys appear on the bottom line (Message Bar), the associated commands can be invoked by pressing the function key (which is indicated in white on a black background) or by positioning the mouse cursor on any portion of the command or key and clicking the mouse. For example, to save your document in Notepads just press F5 or click anyplace on the Save command on the Message Bar with the mouse; this brings up the Save File to Disk dialog box.

Using the Mouse



PC Tools Desktop fully supports and can be used with either your keyboard or a Microsoft (or compatible) Mouse.

The pull-down menu approach to choosing and executing commands, along with the overlapping window approach for displaying an application's information makes using PC Tools Desktop much easier with a mouse.

***Note:** In order to use a mouse, its driver must be installed in your AUTOEXEC.BAT before PC Tools Desktop or PC Shell or CONFIG.SYS file. Please see your mouse manual for more information.*

The following table describes basic mouse techniques:

To	Do This
Position the Mouse Pointer	Move the mouse; the mouse pointer on the screen mirrors the motion of your hand.
Click	Move the mouse to the desired selection. Press and release the right or left mouse button.
Double-click	Move the mouse to the desired selection. Quickly press and release the right or left mouse button twice.

Drag

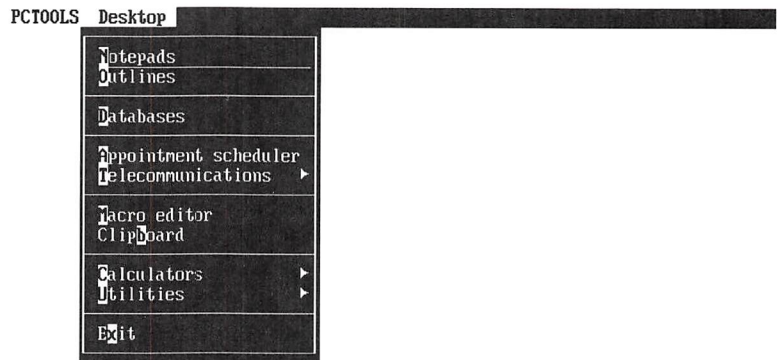
Hold down the right or left mouse button and move the mouse. Release the mouse button on the desired selection.

Select

Position the mouse pointer on what you want to select and click once.

Choosing Applications

When PC Tools Desktop starts, you see the main menu, which displays all nine applications on the PC Tools Desktop pull-down menu. The PC Tools Desktop menu is available at all times during any PC Tools Desktop program. In addition, if you loaded PC Shell resident before loading PC Tools Desktop, PC Shell also appears on the PC Tools Desktop main menu, available at all times from any PC Tools Desktop application.



SHOWS MAIN MENU AND ALLOWS RUNNING ANOTHER DESKTOP APPLICATION

When you open an application, it appears in its own window and can be opened, closed, moved, and (usually) changed in size and color. You can have multiple windows (as many as 15) open in PC Tools Desktop at once, although this number might be lower if your computer does not have enough available memory. This is also indicated in the copyright dialog box when PC Tools Desktop is loaded resident. If that is the case, you will receive a message telling you that the application stack is full. Even though only one application is running at a time, PC Tools Desktop's ability to instantly switch lets you work in any window that is open.

3. About PC Tools Desktop

Note: The Clipboard, Modem Telecommunications, Fax Telecommunications, the Algebraic, Financial, Scientific, and Programmer's Calculators, and all of the Utilities applications do not allow you to have more than one of the same application open at once. For example, if you have one Financial Calculator window open on the screen and attempt to open another one, you will be returned to the original window. Conversely, if you are working in Notepads, Outlines, Databases, the Appointment Scheduler, or the Macro Editor, PC Tools Desktop will allow you to open multiple windows of the same application.

❑ To choose an application from the PC Tools Desktop menu:

Here is how you choose an application from the PC Tools Desktop menu:



- Use the UP and DOWN arrow keys to highlight the application you want to open and press ENTER.

or

- Press the highlighted letter of the application you want to open.



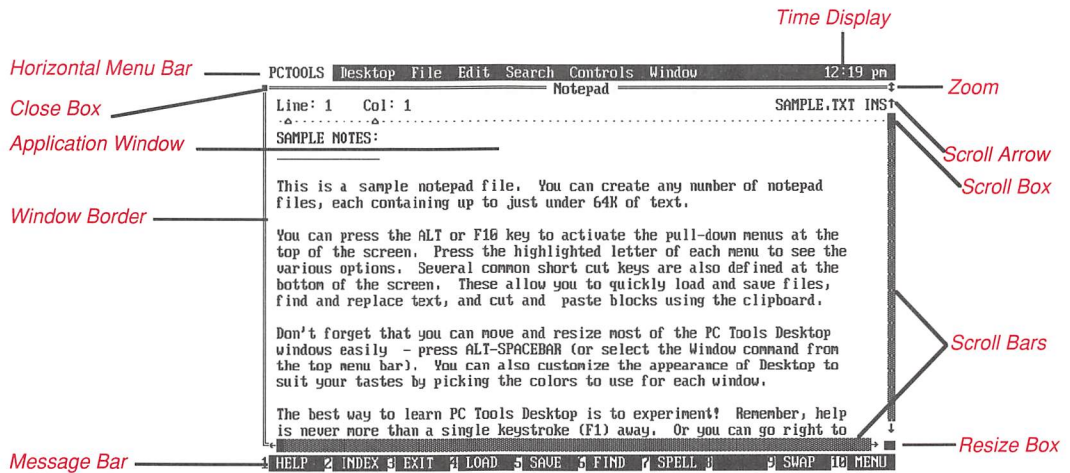
- Position the mouse pointer on the application you want to open and click the left or right button once.

Running PC Shell from PC Tools Desktop

If PC Shell has been installed as a TSR before PC Tools Desktop was installed, then PC Shell can be run from the PC Tools Desktop menu.

PC Tools Desktop Screen Features

PC Tools Desktop uses a pull-down menu interface to make choosing and understanding commands easy. A window environment is used to display the individual applications and makes it possible to have several applications on the screen at once or for a single application to display multiple items (such as pull-down menus, dialog boxes, application windows) at the same time. Even though each application in PC Tools Desktop performs unique functions, the interface is the same. The following illustration shows the user interface in Notepads.



Horizontal Menu Bar: is the bar across the top of the screen containing the names of pull-down menus available with each application, and the program name, PC Tools Desktop, displayed in the upper-left corner. Each PC Tools Desktop application has the PC Tools Desktop main menu and the Window menu. The PC Tools Desktop main menu contains a list of all PC Tools Desktop applications, while the Window menu contains commands that let you change window colors, change the number of lines on a window, move a window with your keyboard arrow keys, and change the size of a window.

Close Box: used with the mouse to “close” (or put away) a window. This may not be present on all windows.

Application Window: contains the information for the application you are working on. The window shown in the above illustration is the Notepads application.

Window Border: used to indicate the active window and used with the mouse at the top of the window to move it. When a window is “active” it means that keystrokes and mouse actions apply to that window. A window has a double-lined border if it is active and a single-lined border if it is not active. The name of the application is displayed, centered, in the top border.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using an application when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been

3. About PC Tools Desktop

highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to save your document in Notepads, just press F5 or click on the Save command in the Message Bar with the mouse; this brings up the Save File to Disk dialog box.

Although the F4-F8 shortcut keys differ between PC Tools Desktop applications, the following shortcut keys are used in *all* applications:

Function Key	Function Name	What It Does
F1	Help	Activates context-sensitive Help
F2	Index	Activates the Help index
F3	Exit	Exits an application or dialog box. Works the same as the ESC key
F9	Swap	Switches the active window
F10	Menu	Activates the horizontal menu bar

Resize Box: used with the mouse to resize the window. This may not be present in all windows.

Scroll Bars: used with the mouse to move, or “scroll,” through the information displayed in an active window. This may not be present in all windows.

Scroll Box: used to scroll to a specific part of a window. For example, dragging the scroll box to the middle of a word-processing file displays the middle of the application’s data.

Scroll Arrow: used with the mouse to move through a window. Clicking on a scroll arrow moves a window incrementally. Clicking on the scroll arrow with the mouse and holding down the mouse button scrolls a window continuously.

Zoom Box: used with the mouse to expand the active window to full-screen size or to reduce the active window to the size it was before it was zoomed to full size. You can also use the Zoom command in the Window menu. This is not present in all application windows.

Time Display: shows the current time in the upper right corner of the horizontal menu bar.

Choosing Commands

Each application has its own set of commands, organized in pull-down menus on the horizontal menu bar, to perform specific tasks. For example, Notepads has several commands for editing text in one pull-down menu (shown below) and a different set of commands for loading and saving files in another pull-down menu.



❑ To choose commands:

Commands are organized in the manual in the order they appear on the pull-down menus. The following shows you various ways to choose commands in PC Tools Desktop applications.

Note: When you see a keystroke combination (CTRL - L, for example), it means you need to press and hold down the CTRL key at the same time that you press the L key.



1. Press ALT or F10 to highlight the menu names on the horizontal menu bar.
2. Press the highlighted letter of a menu name to pull down the menu and display the commands.
3. Press the highlighted letter of a command name.
For example, in Notepads, press ALT or F10, then E, then C to choose the Copy to Clipboard command from the Edit menu.

or

1. Press Alt or F10 to highlight the command names on the horizontal menu bar.

3. About PC Tools Desktop



2. Press the highlighted letter of a menu name to pull down the menu and display the commands.
3. Use the UP/DOWN arrow keys to move within a menu, and the RIGHT/LEFT keys to move across menus. The HOME and END keys move to the first and last items of a menu.
4. Press ENTER to select the command you want.

1. Position the mouse pointer on the menu name you want and click. This pulls down the menu and displays the available commands.

2. Position the mouse pointer on the command you want and click.

or

1. Position the mouse pointer on the menu name you want.
2. Press and hold the mouse button as you move it to the command you want. You are dragging the mouse as you do this.
3. Release the mouse button on the desired command. If you change your mind and don't want to make a menu selection, drag the mouse pointer outside the menu and release the mouse button.

❑ To close the menu without choosing a command:

If a command has not been selected you can clear the menu. To do this

- Press ESC or F3.

or

- Click the mouse anywhere outside the pull-down menu.

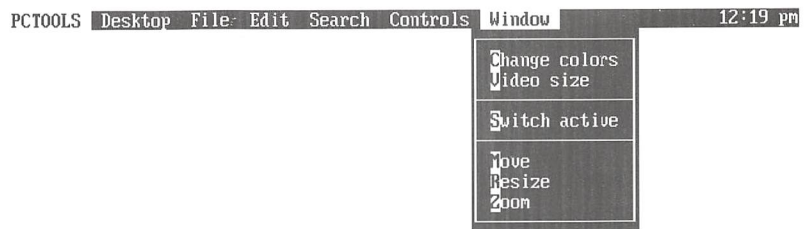
Customizing Windows

A window is an area on the screen in which PC Tools Desktop applications display their information. You can have up to 15 windows at a time on the screen in PC Tools Desktop, although this number might be lower if your computer does not have enough available memory. This is also indicated in the copyright dialog box when Desktop is loaded resident. Because you can have multiple

windows on the screen, you can customize the appearance of each window and move from window to window selecting an active window to work in.

For example, you can make the window a different color to distinguish it from other windows, move a window, and change the size of a window to make room for other windows. Customizing features include changing the number of lines displayed on the screen, changing window color and size, moving windows, and switching active windows.

All PC Tools Desktop applications use windows and have window customizing commands found on the Window menu. These commands enable you to change window colors, switch the active window, and move and resize windows.



Although all PC Tools Desktop applications use windows, some windows cannot be changed. Therefore, some applications do not have all of the possible customizing commands. For example, the Financial Calculator cannot be resized as you would lose many of the calculator's functions. Also, the ability to switch active windows is available only when you have two or more windows open. When you are working with only one window, you do not need to switch active windows, so the Switch Active Window command will not appear on the Window menu. In addition, windows that can't be resized won't have the resize option.

Changing Window Colors

There are two ways to set and save color and size changes in Notepads, Outlines, Databases, and the Macro Editor. If color and size changes are made to the current PC Tools Desktop files, they only affect that file. When another file is opened, it will have the color and size characteristics last used and saved for that file. If, however, you choose the Save Setup command in Notepads, Outlines, Databases, and the Macro Editor, you can save window customizing features for each application, and this way have a different set of default window features for each application. There is

more information about the Save Setup command in the chapters that describe these applications.

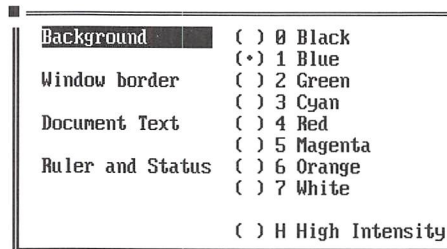
In addition, you can globally change colors for the pull-down menus, the horizontal menu bar, the dialog boxes, and the messages boxes by using the System Menu/Window Colors command in the Utilities application.

To change colors:

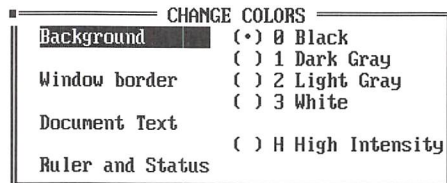
The changeable features and command names for changing window colors differ slightly from application to application, but the following procedure works for all change window colors options.



1. Choose Change Colors from the Window menu. The application's Change Window Colors dialog box appears.



If you are running PC Tools Desktop with the LCD display setting, then the following dialog box appears:



The Change Window Colors dialog box contains the following options:

Background: changes the color of the window background.

Window Border: changes the color of the window border.

Document Text: changes the color of the text.

Ruler and Status: changes color of the ruler and status line.

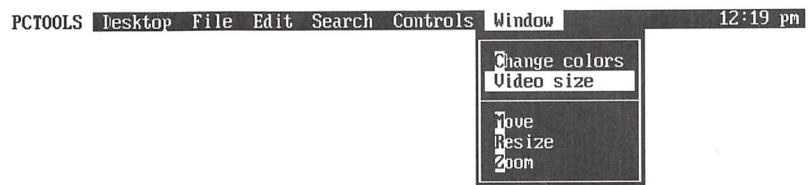
2. Use the UP and DOWN arrow keys to select the option corresponding to the area you want to change color. The current color is indicated in the color options.
3. Type the number corresponding to the color you want. You can also select H for high intensity. In most cases, as soon as you do, the color change is immediately visible beneath the Change Window Colors dialog box. This lets you preview the colors before you close the dialog box.
4. Press ESC or F3 to change the window colors and close the dialog box.



1. Choose Change Colors from the Window menu. The application's Change Window Colors dialog box appears.
2. Click on the option corresponding to the area you want to change color. The current color is indicated in the color options.
3. Click on the color option you want. In most cases, as soon as you do, the color change is immediately visible beneath the Change Window Colors dialog box. This lets you preview the colors before you close the dialog box.
4. Click on the close box to change the window colors and close the dialog box.

Changing the Number of Lines Displayed

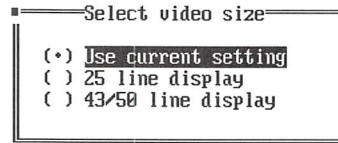
The Video Size command, which appears on the Window menu, allows you to change the number of lines that are displayed on your computer screen if you have either an EGA or VGA display.



An EGA monitor can display either 25 or 43 lines, and a VGA monitor can display either 25 or 50 lines.

3. About PC Tools Desktop

When you choose the Video Size command, the following dialog box appears:



The default setting is Use Current Setting, which means that the number of lines displayed is determined by whatever the video size was set to before you started PC Tools Desktop. For example, if you were running Lotus 1-2-3 in 50-line mode on a VGA monitor and you hotkey into PC Tools Desktop, it too will display 50 lines. If you run another application in 25-line mode and you hotkey into PC Tools Desktop, it will display 25 lines.

You can select to display 25 or 43/50 lines in PC Tools Desktop under all conditions. You can also change the number of lines displayed at any time within PC Tools Desktop. For example, if you are using 25-line mode, and are working with a Notepads file in which you would like to see more on the screen, you can change to 43/50-line mode and PC Tools Desktop will change immediately.

Note: Running PC Tools Desktop in 43/50-line mode limits the maximum number of windows you can have on the screen to 7. This is because more memory is required for each window in 43/50-line mode.

❏ To change the video size:



1. Select Video Size from the Window menu by pressing ALT - W, then V. The Select Video Size dialog box appears.
2. Select the desired line setting by using the UP and DOWN arrow keys, then pressing ENTER.
3. Press ESC or F3 to close the Select Video Size dialog box. The new line count is activated and is reflected in whatever application you are currently using.

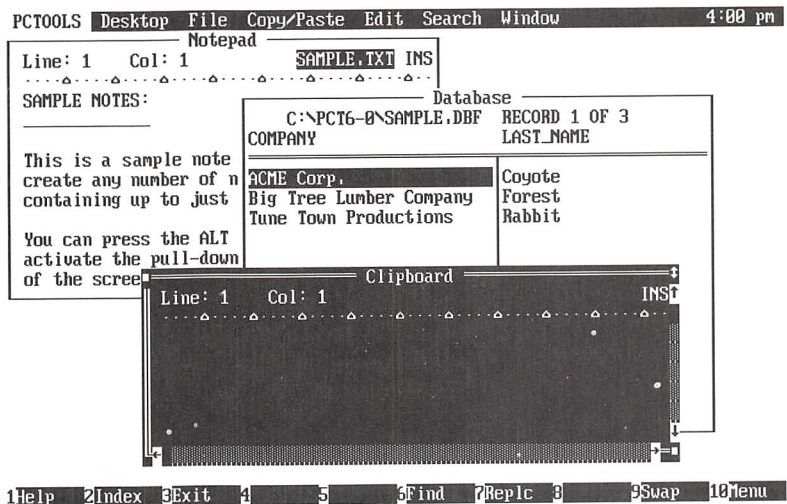


1. Choose Video Size from the Window menu by clicking on it. The Select Video Size dialog box appears.
2. Select the desired line setting by clicking on it.

- Click on the close box to close the Select Video Size dialog box. The new line count is activated and is reflected in whatever application you are currently using.

Switching the Active Window

You can have more than one window open at once, but you can work in only one window at a time, the active window. The active window is the top window and is indicated by a double-line border; all other windows have a single-line border. The horizontal menu bar always shows the commands for the active window. The illustration below shows several stacked windows, with the Clipboard as the active window.



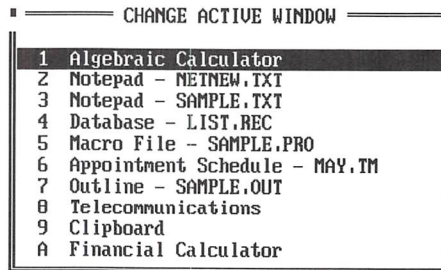
❑ To switch the active window:

Note: If you have a mouse, the simplest way to switch the active window is to click in a window to make it the active one. However, if no part of the window you want is visible, you need to choose the Switch Active command from the Window menu and perform the following:



- Choose Switch Active from the Window menu or press F9 (it's the same as pressing ALT - W - S).
If there are only two windows open, they are swapped. If you have more than two open windows, the following dialog box appears showing a list of all the open windows, what application is associated with the window, and the name of the file loaded into the window:

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2. Select the window you want to make active by pressing the UP and DOWN arrow keys to move the highlight bar to the window you want and press ENTER.

or

- Press the number or letter associated with the window you want active.

The window currently on top is “swapped” with the selected window.



- Click on any portion of the line describing the window you want as the active window. For instance, in the example above, you can click on “7,” “OUTLINE,” or “SAMPLE.OUT” to select the window containing SAMPLE.OUT.

The selected window is “activated” and placed on top.

Moving a Window

When you move a window, its size doesn’t change, just the window position.

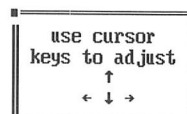
To move a window:

The Move Window command always operates on the active (top) window.



1. Choose Move from the Window menu.

The following dialog box is displayed.



2. Use the UP , DOWN, LEFT, and RIGHT arrow keys to reposition the window.
3. Press ENTER, ESC , or F3 when the window is where you want it.



1. Position the mouse pointer on the top window border (but not in the close box or zoom arrows).
2. Click and then drag the window to reposition it.
3. Release the mouse button.

Resizing a Window

If there is not a resize box in the window you are using, the window cannot be resized.

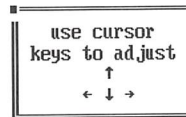
To resize a window:

You can change the size of a window by performing the following task.



1. Choose Resize from the Window menu.

The following dialog box is displayed.



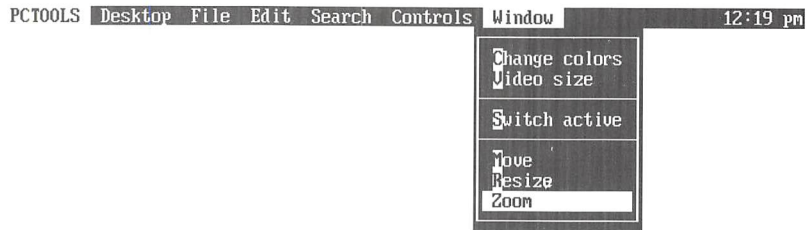
2. Use the UP , DOWN, LEFT, and RIGHT arrow keys to reposition the window.
3. Press ENTER, ESC , or F3 when the window is where you want it.



1. Position the mouse pointer on the resize box in the lower-right corner. If there is no resize box, the window cannot be resized.
2. Click and then drag the window to reposition it.
3. Release the mouse button.

Resizing with the Zoom Command

Notepads, Outlines, Databases, the Macro Editor, Fax Telecommunications, and the Clipboard applications enable you to quickly resize windows. Using the Zoom command on the Window pull-down menus, or the Zoom arrows in the upper-right corner of a window, you can change your application's window from a smaller-sized window to full-screen display (and back again) with just a couple of keystrokes or clicks of the mouse button. The following illustration shows you the Zoom command on the Notepads menu.



□ To zoom a window:

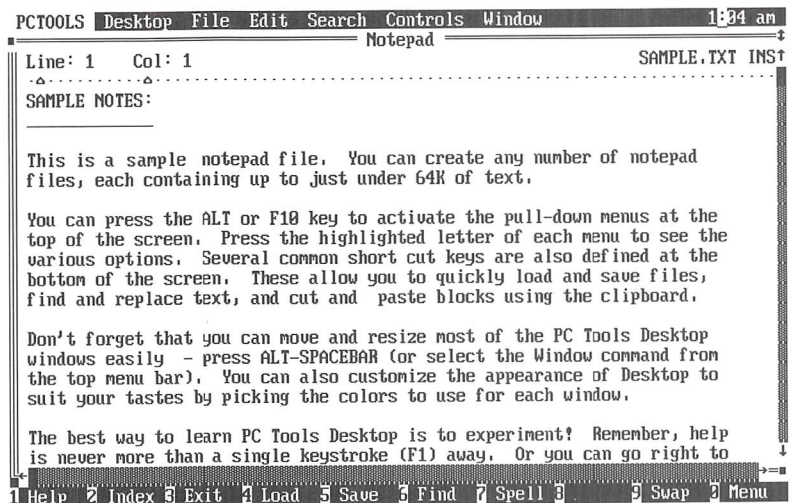
The Zoom command or zoom arrows enable you to quickly switch from a small window to a full-screen window and back again.



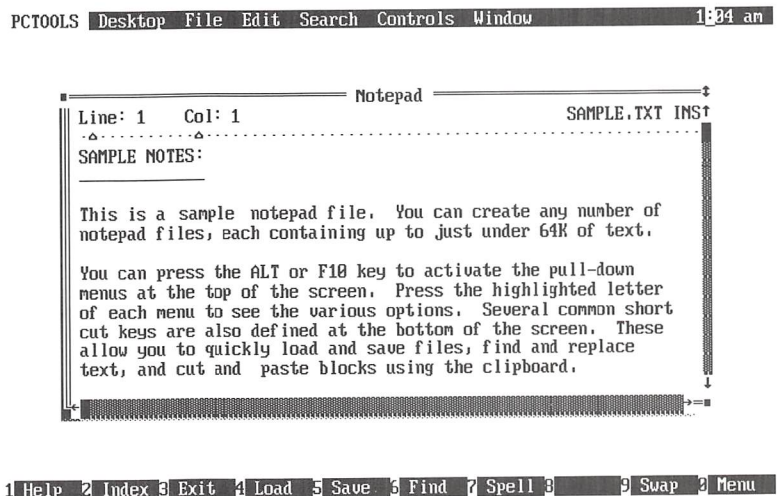
- Choose Zoom from the Window menu. If your application's window is small when you choose Zoom, it is expanded to fill the screen.



- Click once on the zoom arrows in the upper-right corner of the window



If you want to see your application in a smaller window, choose Zoom again or click on the zoom arrows. The window is automatically resized to the size and position you last saved.



❑ To close a window:



- Press ESC or F3.

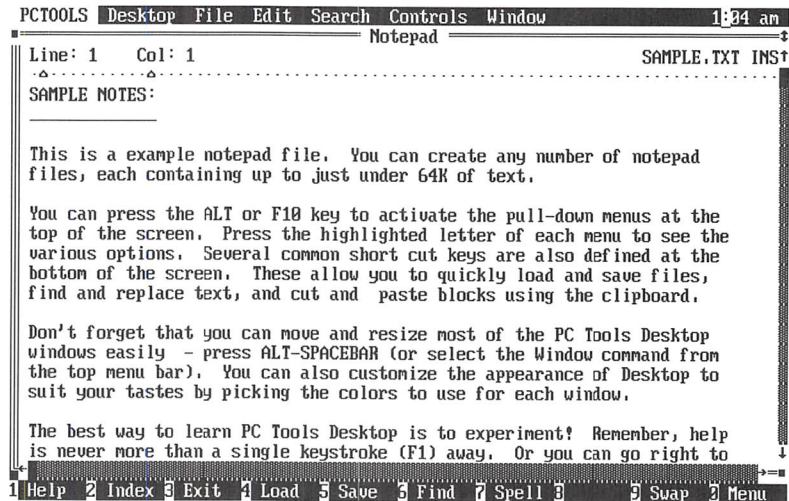
3. About PC Tools Desktop



- Click on the close box in the upper-left corner of a window.

Scrolling in Windows

Some applications cannot display all of their information in the available window space. For example, your text in a Notepads file is probably more than will fit on one screen. To view all of the information associated with an application, you can scroll, or move through, the window.



You can use the keyboard or the mouse to scroll in a window.

□ To scroll through an application:



- Use the UP and DOWN arrow keys to scroll up or down one line at a time, or
- Use the PGUP or PGDN key to move up or down one window full at a time or the HOME or END key to go to the beginning or end of a window.



- Press the right mouse button in a window and drag the mouse. Moving the mouse to the top of a window scrolls it up, and moving the mouse to the bottom of the window scrolls it down. With Wordwrap turned off, you can also scroll through a file horizontally by clicking the right mouse and dragging the mouse to the right or left.

or

- Use the following scrolling features:



Scroll Bars: used to scroll in a window as follows:

Scroll Arrows: clicking on a scroll arrow moves the display incrementally. Clicking and holding down on the scroll arrow scrolls the display continuously.

Scroll Box: used to scroll to a specific part of the application. For example, dragging the scroll box to the middle of the scroll bar displays the middle of the application's data.

- Click on the scroll arrow to scroll incrementally a line at a time.

or

- Click and hold the left mouse button on the scroll arrow to scroll continuously.

or

- Click in the scroll bar to indicate the approximate place in the application you want to display. For example, point and click half way down the scroll bar to view the middle section of the application. Using the scroll bar enables you to position more precisely.

or

- Drag the scroll box to the approximate place in the application you want to display.

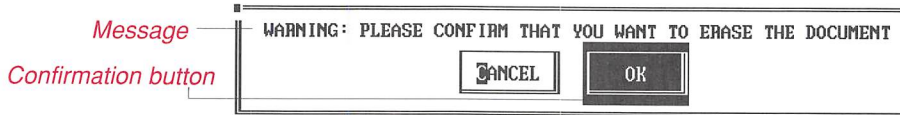
Dialog Boxes

PC Tools Desktop displays dialog boxes when a program requires additional information to carry out a command or needs to give you a message. A dialog box is similar to a window, appearing over the top of any existing windows.

Message Dialog Boxes

Message dialog boxes contain messages and confirmation buttons so you can respond to the message. For example, if you want to delete all text in a Notepads file, a message box warns you that all the text will be erased.

3. About PC Tools Desktop



A message dialog box contains the following parts:

Message: displays what the program needs to tell you.

Confirmation Button: provides a way to dismiss the message box after you have read the message.

You must respond to the message box by selecting a confirmation button. This closes the message box.

❑ To respond to the message:



- Press ENTER to select the highlighted button, or ESC , F3, or the Cancel button to dismiss the message box.

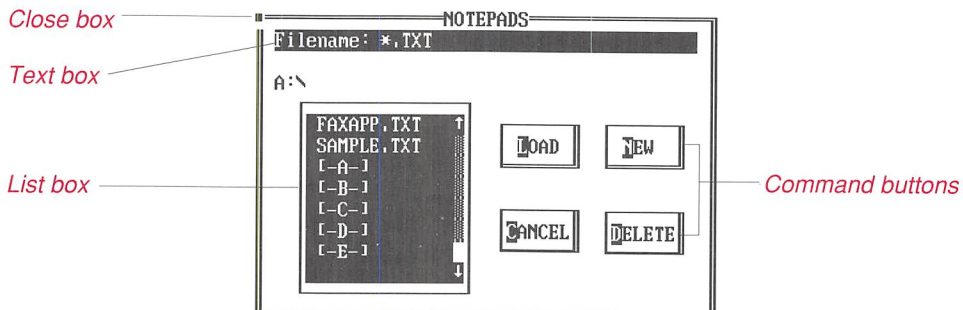


- Click on the confirmation button, or click on the close box to dismiss the message box.

If there are multiple options, you can either use the TAB key to select a button, or press ALT - letter (where letter is the highlighted letter in the button). If you are using a mouse, simply click on the appropriate button.

Command Dialog Boxes

Command dialog boxes require you to provide additional information, or select options, or both. For example, the File Load dialog box contains several areas that are used when opening, deleting, or creating files.



The following are definitions of the areas used in the File Load dialog box, which is illustrated above:

Text Box: is the area where you can type information that replaces the current text if there is any (for example, names of files, specific words, or numbers). This text is used when the command is carried out. Text boxes sometimes contain default settings, as in this case, "*.TXT."

List Box: is the box containing a list of available choices instead of typing text in the text box. Selections made in the list box automatically appear in the text box.

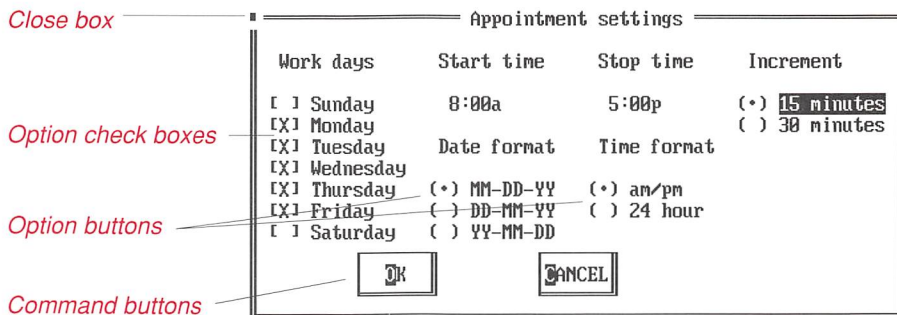
Command Button: carries out the action according to its name. Dialog boxes frequently have at least two command buttons: Cancel and OK or the name of the function itself (in this case, LOAD).

Cancel: ignores any changes to the settings you may have made and closes the dialog box. The Cancel button lets you explore a dialog box without committing yourself to any changes.

OK: accepts the settings in the dialog box, applies them to the program, and closes the dialog box. The File Load dialog box uses LOAD instead of OK to be absolutely clear.

Close Box: used with the mouse to close the dialog box.

In addition, some dialog boxes have option check boxes that toggle settings or options on and off. The Appointment Settings dialog box from the Appointment Scheduler is an example.



Option Check Boxes: These options can be identified by the bracket characters []. You can select multiple items in a list, and each selected item will have the "X" in the box. You can make selections in

option check boxes with the keyboard or the mouse. Tab to the appropriate option check box and press ENTER or click the option check box with the mouse to turn the setting on or off. Pressing the SHIFT - TAB keys moves you backward through the items.

Option Buttons: These buttons can be identified by the parentheses (). They allow you to pick from a variety of options by selecting only one option. Selecting any one option turns off all other options in the same group. (This is similar to the operation of car radio buttons.)

❑ **To select an option among a group of option buttons:**



1. Tab to the desired group of option buttons. Pressing the SHIFT - TAB keys moves you in the opposite direction.
2. Use the arrow keys to move within the group.
3. When the desired selection is highlighted, press ENTER. This switches off any other option buttons within the group.



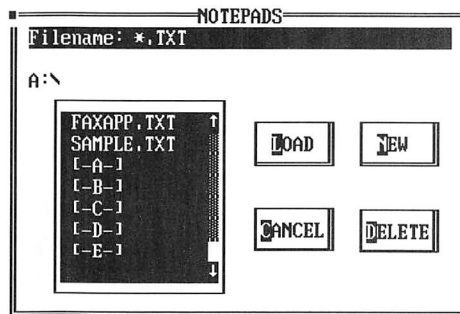
- Click the desired option button to make the selection. This switches off the other option buttons within the group.

Note: When using the TAB key to move in a dialog box with both option check boxes and option buttons, you will notice that each press of the TAB key moves you to the next option check box (since more than one can be selected). However, the TAB key will only move you to the next group of option buttons, so you need to use the arrow keys to select the button you want (since only one can be selected).

File Load Dialog Box

Some applications (for example, Notepads) open by requesting the name of a file to be loaded into the application window.

Files are always loaded using the File Load dialog box. Since you need to use the File Load dialog box in many applications, details for using it are explained here. This example of the File Load dialog box provides a guided tour of moving among the parts of a dialog box and selecting options.



When you choose an application (for example, Notepads) from the PC Tools Desktop pull-down menu, the File Load dialog box appears listing files with the .TXT (text) extension in the list box.

The list box contains a list of the files with extensions in the current directory for the current application. In addition, drives and directories appear in the list box so you can move to a different drive or directory to select a file. Drives and directories are indicated with brackets around the drive or directory name, for example, [-C-] and [PCTOOLS], and are selected the same way a file is selected.

You can change the name of the default directory, PCTOOLS, for Notepads, Outlines, Databases, and the Macro Editor. Type the directory's name in the Filename text box and press ENTER (for example, \NOTES). The next time you load a file or open a new file using the File Load dialog box in any of these applications, the directory name will be the name you changed it to. This allows you to have one directory for your Notepads files, another one for your Databases files, and so on.

You can also change the default extension that Notepads or Outlines use by choosing Notepads or Outlines from the PC Tools Desktop menu to bring up the File Load Dialog box, typing the new extension, pressing ENTER, then exiting from the File Load Dialog box by pressing ESCAPE or clicking on the close box. This will set the changed extension for any future file loads. For example, the default extension for Notepads is .TXT; you can enter .* to select all files in the subdirectory, or .XYZ to select those files with the extension of .XYZ, etc. The next time you use Notepads, the extension used will be the one you set it to.

3. About PC Tools Desktop

❑ To open a new file using the File Load dialog box:

To create a new file, you need to supply a name for the file in the text box and then select the New command button. The cursor is positioned in the text box ready for you to begin typing.

Note: If you do not supply a file name in the text box, PC Tools Desktop automatically creates a default file for you and gives it the file name WORK with an extension appropriate for the current application. For example, in Notepads the file name is WORK.TXT.



1. When you are asked to enter a file name, type a file name and extension for the application in the text box. Any legal DOS file name can be entered, including a path name if you do not want the file to be created in the directory shown.

If you do not enter an extension, the default extension corresponding to the application is appended. For example, if you are in Notepads and enter the file name JOBS, the extension .TXT will be appended to create JOBS.TXT. This way, you don't need to remember the extensions for each application. If you want a file name with no extension, simply type the file name and end it with a period (for example, JOBS.). In this case, no extension is appended.

As you start typing a file name, the name that originally appeared in the text box when you opened it is overwritten.

2. Press ENTER.

At this point a dialog box appears, informing you that the file was not found in the list of existing files and asking you if you want to create a new file instead.

3. Select OK.

or

Press ALT-N.

or

Tab to the New command button and press ENTER.



1. When you are asked to enter a file name, type a file name and extension for the application in the text box. Any legal DOS

file name can be entered, including a path name if you do not want the file to be created in the directory shown.

If you do not enter an extension, the default extension corresponding to the application is appended. For example, if you are in Notepads and enter the file name JOBS, the extension .TXT will be appended to create JOBS.TXT. This way, you don't need to remember the extensions for each application. If you want a file name with no extension, simply type the file name and end it with a period (for example, JOBS.). In this case, no extension is appended.

As you start typing a file name, the name that originally appeared in the text box when you opened it is overwritten.

2. Click on the New command button.

Loading an Existing File

To load an existing file, the name of the file must be entered in the text box. Existing files with the application's default extension appear in the list box when the File Load dialog box appears, and the text box contains the wildcard file name used to select the list of files.

You can either type the file name in the text box or select the file from the list box.

☐ To type the file name:

When the File Load dialog box appears, the cursor is positioned in the text box ready for you to begin typing.

1. Type a file name and extension for the file you wish to load. As you start typing a file name, the name that originally appeared in the text box when you opened it is overwritten.

If you do not enter an extension, the default extension corresponding to the application is appended. For example, if you are in Notepads and enter the file name JOBS, the extension .TXT will be appended to create JOBS.TXT. This way, you don't need to remember the extensions for each application. If you want a file name with no extension, simply type the file name and end it with a period (for example, JOBS.). In this case, no extension is appended.

2. Press ENTER to load the file.

Note: If you accidentally entered the wrong file name and the file does not exist, a dialog box is activated telling you that the file was not found.

❑ To select a file name from the list:

You can change the name of the PC Tools default directory by entering a new path name in the text box and pressing ENTER, or you can use the following procedure for changing directories and drives as well. You can also change the file wildcards to show all or selected files. For example, changing *.TXT to *.* in Notepads will display all files instead of just the files with .TXT extensions.

Once you have the appropriate directory and list of files to choose from, perform the following task:



1. Press the TAB key once to move to the list box.
2. Select the file name you want to load by pressing the UP and DOWN arrow keys or the PGUP, PGDN, HOME, and END keys to move through the list box.
As a file name is selected, it is highlighted and displayed in the text box.
3. Press ENTER and the file is loaded.

or

Tab to the Load command button and press ENTER.

or

Press ALT - L to automatically load the file.

The selected file is loaded into the application window.



1. Select the file you want to load by clicking on its file name in the list box. (Use the scroll bar if there are more files than will fit in the list box.)
The selected file is displayed in the text box.
2. Click on the Load command button.

or

Double-click on the selected file from the list box.
The selected file is loaded into the application window.

❑ To delete a file using the File Load dialog box:

Enter the name of the file you want to delete in the text box or tab to the file list box and scroll to the file you want to delete.



- Press `TAB` to select the Delete command button and press `ENTER`.

or

- Press `ALT - D`.



1. Select the file you want to delete by clicking on its file name in the list box. (Use the scroll bar if there are more files than will fit in the list box.)
The selected file is displayed in the text box.
2. Click on the Delete command button.

❑ To cancel the File Load dialog box:

Canceling the File Load dialog box causes the box to disappear and returns you to the place you were in PC Tools Desktop before the file load was requested.



- Press `TAB` to select the Cancel command button and press `ENTER`.

or

- Press `ALT - C`.

or

- Press `ESC` or `F3`. This cancels any dialog box.



- Click on the upper-left corner of the close box.

or

- Click the Cancel command button.

Getting Help

PC Tools Desktop provides context-sensitive Help, available at all times by simply pressing the F1 key. If you are unsure what a certain pull-down menu item does, use Help to see a short description. For example, in Notepads, pressing F1 provides you with a help message about what Notepads is and what it does.

In addition, Pressing F2 anywhere in the application displays the Help Index.

□ To get help:



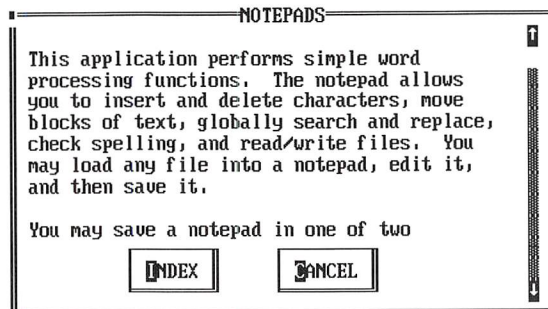
1. Press F1 anywhere in an application.

or



Click on the Help command in the Message Bar with the mouse.

The correct Help dialog box appears, giving you information for the function you are using or your current place in the application. If the Help text does not all fit in the dialog box window, you can scroll new text into the box using the keyboard or the mouse.



2. Select the Index command button for information on other features in the application. The following Help Index appears in the dialog box so you can select an entry.

or

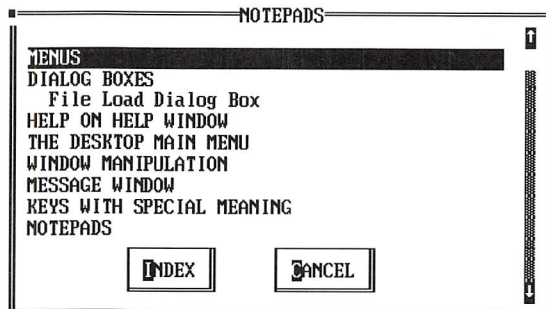


Press F2 anywhere in the application.

or



Click on the Help command in the Message Bar with the mouse.



4. Notepads

Notepads is the PC Tools Desktop word processor. It enables you to create, edit, and print standard text files and is compatible with WordStar files. Notepads fully supports the keyboard and Microsoft or compatible mouse and has full editing capabilities including search and replace, moving blocks of text, and a built-in spelling checker. Each Notepads file is limited to about 60,000 characters. ASCII graphics characters are also supported in Notepads.

Since PC Tools Desktop can be memory-resident, you can have instant access to a word-processing tool with Notepads. For example, if you're working with a spreadsheet application and need to make some notes for a report, you simply hotkey into PC Tools Desktop, make your notes using the word-processing functions in Notepads, and then hotkey back out of PC Tools Desktop without affecting your spreadsheet application.

With Notepads, you can do any of the following:

- Create or open a file
- Search for and replace text
- Check your document for spelling errors
- Create headers and footers and define page layouts
- Add customized printing commands
- Print your documents
- Use WordStar compatible files
- Use the Clipboard to transfer text to or from other applications

Since PC Tools Desktop enables you to have as many as 15 windows open, you can have 15 different Notepads or a combination of Notepads and other applications open at once. You can also edit any text file (for example, your AUTOEXEC.BAT or CONFIG.SYS files) or any WordStar compatible file on your disk.

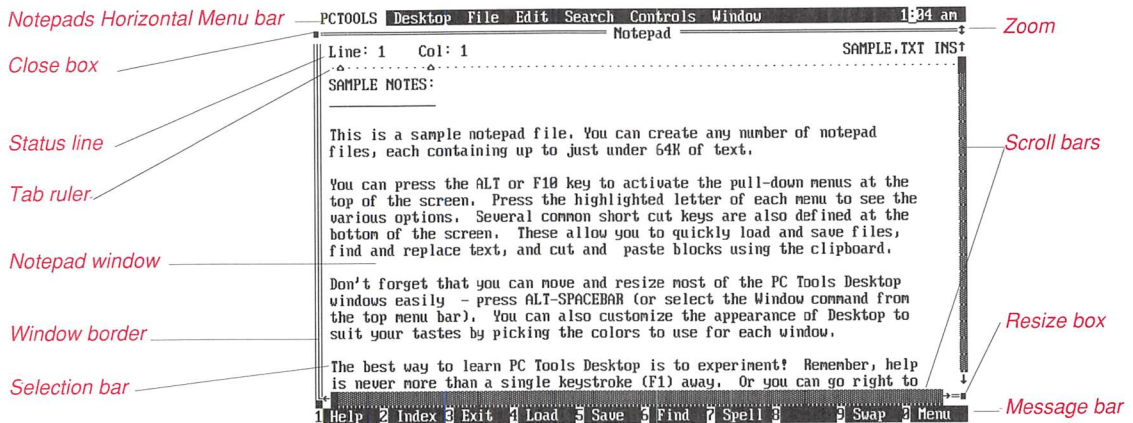
4. Notepads

Starting Notepads

Once Notepads is chosen from the PC Tools Desktop pull-down menu, the File Load dialog box appears. See the *About PC Tools Desktop* chapter for information on using the File Load dialog box.

After a Notepads file has been loaded or created, the Notepads window (below) is displayed.

Note: You can display as many as 15 Notepads files simultaneously by choosing Notepads again from the PC Tools Desktop pull-down menu.



The Notepads window contains the following parts:

Notepads Horizontal Menu Bar: contains the names of pull-down menus. The time is displayed in the far-right corner.

Close Box: used with the mouse to close a window.

Status Line: shows what line and column the cursor is on, the file name, and whether you are in insert or overwrite mode. When "INS" appears in the upper-right corner of the window, you are in insert mode; otherwise, you are in overwrite mode. Also displays additional information, like "Spelling in Progress."

Tab Ruler: used to set and changes tab stops if the Tab Ruler Display is on.

Notepads Window: contains the text of the file you're working with.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Selection Bar: is blank space in the first column used with the mouse to select a line of text.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using Notepads when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to save your document, just press F5 or click on the Save command in the Message Bar with the mouse; this brings up the Save File to Disk dialog box.

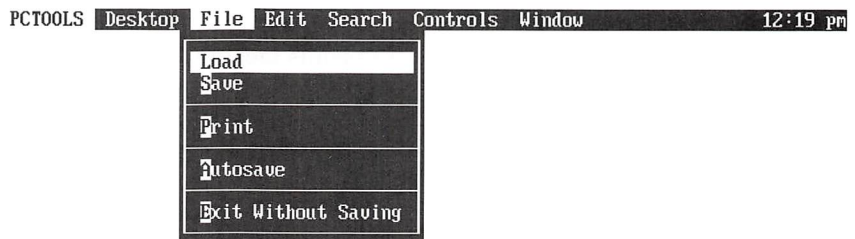
Resize Box: used with the mouse to resize the window.

Scroll Bars: used with the mouse to move, or “scroll,” through the file.

Zoom Box: used with the mouse to expand the active window to full-screen size or to reduce the active window to the size it was before it was zoomed to full size. You can also use the Zoom command in the Window menu.

Working with Files

The File pull-down menu below provides a list of commands for working with your Notepads files.



Loading Files

- Choose Load from the File menu.
The File Load dialog box appears containing the names of the existing files, drives and directories. For information about using the File Load dialog box, see Using the File Load Dialog Box in the *About PC Tools Desktop* chapter.

Note: When you load a file into the Notepads window using the Load command, any existing Notepads file in the current window is closed and replaced by the file you are loading. Any changes made to the current file

4. Notepads

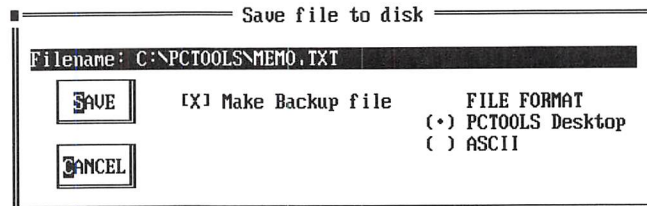
are lost when you load another file, so be sure to save changes to your current file before opening another one. Files loaded into other Notepads windows are not affected.

Saving Files

Notepads files are automatically saved when you close the Notepads window by pressing **ESC** or clicking in the close box. In addition, you can save a file using the Save and Autosave commands from the File menu.

❑ To save a file:

1. Choose Save from the File menu.
The Save File to Disk dialog box appears with the name of the current file in the Filename text box.



Note: If you want to save the file under a different name, just enter a new name in the text box.

2. Select any of the following Save options:

PC Tools Desktop: saves your Notepads file in PC Tools Desktop format, preserving all tabs, page layout commands, headers and footers, and window colors and sizes. PC Tools Desktop is the default file format.

ASCII: saves your Notepads file as a straight text file. This option provides maximum interchangeability with other word processors, but does not save formatting information. If you load an existing ASCII file, it will be saved as ASCII unless you change the option.

Make Backup File: in addition to saving the file to the specified file name and file format, this option creates a backup file for your Notepads file and gives it the .BAK extension. The default backup option is on. If you do not want to create a backup file, select this option to turn it off.

3. Select the Save command button to save your file with the options you've selected.
The dialog box closes.

Printing Files

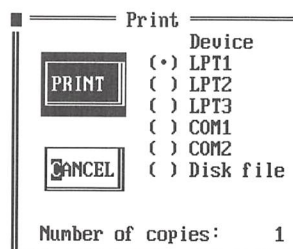
You can make use of your printer's formatting capabilities such as boldface, italics, and underlining by inserting printer control macros into your Notepads file. In addition, we have included a simple way to send setup commands to your printer for your favorite font, type size, printing mode, etc. by using a macro called SETUP.

To make your printing task easier, PC Tools Desktop includes macro files for the Epson FX-80, the IBM Proprinter, Hewlett-Packard Laserjet, and any Panasonic printer. See the "To Build Printer Control Macros" section in the *Macro Editor* chapter to learn how to add printing commands to your Notepads text and to learn how to use the SETUP macro.

Before you start printing, make sure your printer is hooked up and turned on and you have selected the layout options you want using the Page Layout command from the Controls menu. See the section "Formatting the Page for Printing" later in this chapter.

❑ To print a file:

1. Choose Print from the File menu.
The Print dialog box appears.



2. Select any of the following Print options:

LPT (1, 2, or 3): selects which one of the parallel printer ports to print your file to. Printer port number 1 is the default.

COM (1, 2): selects which one of the serial printer ports to print your file to.

Disk File: formats and saves the text for printing and writes the file to disk (in the directory the file was loaded from) for

4. Notepads

printing at a later date. The print file name consists of the same file name with a .PRT extension.

Number of Copies: specifies the number of copies you want to print.

3. Select the Print command button to start printing. While you are printing either to disk or to the printer, a message appears in the status line.

Autosave

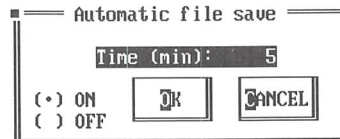
You can have Notepads save your file automatically at specified intervals. The Autosave command saves a file just like the Save command, but at a specific time interval that you set. It is recommended that you use this command to minimize any data loss from power outages.

Autosave is global to Notepads, Outlines, the Macro Editor and the Appointment Scheduler. When Autosave is turned on or off in any of these applications, it is turned on or off in all of them.

☐ To use Autosave:

1. Choose Autosave from the File menu.

The Automatic File Save dialog box appears.



2. Type a number representing the number of minutes between each automatic save. The default setting is 5 minutes.
3. Select either one of the automatic save option buttons:
 - On:** turns on the automatic save for the amount of time you've set. The default setting is on.
 - Off:** turns off the automatic save.
4. Select OK to set the automatic save. At the specified interval your file is saved.

Exit Without Saving

You can exit Notepads without saving any of the changes you made since you last saved. This is helpful if you've made changes and then decide you don't want to keep them.

❑ To exit without changing:

- Choose Exit Without Saving from the File menu.
This closes the window without saving the changes you've made since the last time you saved.

Note: This procedure is not the same as pressing `ESC` or clicking in the close box. These methods of exiting save your changes before exiting.

Editing Text

When you want to create a new Notepads file or make changes to an existing file, you need to perform basic word-processing tasks.

❑ To edit text using the keyboard:

The basic editing operations and keys that perform them are displayed in the table below:

Note: Make sure insert mode is selected or some of the following keyboard functions won't work. You can toggle between insert and overtype modes with the Overtyping Mode command on the Controls menu.

To	Press
Insert a character at the cursor	A character
Insert a space at the cursor	SPACEBAR
Insert a tab at the cursor	TAB
Insert a paragraph at cursor	ENTER
Insert ASCII graphics character	ALT and decimal equivalent (for example, ALT-7 gives you a bullet--the ASCII character •).
Delete a character under the cursor	DELETE
Erase a character to the left of the cursor	BACKSPACE
Move cursor up one line	UP arrow key
Move cursor down one line	DOWN arrow key
Move cursor left one character	LEFT arrow key
Move cursor right one character	RIGHT arrow key
Move cursor left one word	CTRL -LEFT arrow
Move cursor right one word	CTRL - RIGHT arrow

Move to the beginning of the line	HOME
Move to the end of the line	END
Move to the beginning of the file	CTRL - HOME
Move to the end of the file	CTRL - END
Move to the beginning of a window	HOME twice
Move to the end of a window	END twice
Scroll text up one window	PGUP
Scroll text down one window	PGDN
Scroll up one line without moving cursor	CTRL - PGUP
Scroll down one line without moving cursor	CTRL - PGDN

❑ To edit text using the mouse:

You can use the mouse to position the cursor by pointing and clicking.

The Edit pull-down menu below provides commands for editing text.



Cutting, Copying and Pasting

Cutting, copying, and pasting text involves the use of the Clipboard. The Clipboard is a temporary storage area where cut and copied text is placed and pasted from. Once on the Clipboard, text can be edited using the Clipboard application (see the *Clipboard* chapter for more information). Text placed on the Clipboard can be pasted into a different place in the same Notepads file, into a different Notepads file, into other PC Tools Desktop applications, and into underlying applications if you are running PC Tools Desktop resident.

Before you can cut or copy text, you must first mark the text to be cut or copied. The marked text will appear highlighted in the window.

Note: The Clipboard is limited to 4K, which is approximately 80-90 lines of text. If you try to cut or copy to the Clipboard more text than the Clipboard will hold, you will receive a warning message.

❑ To mark a block of text:



1. Place the cursor where you want the block to start.
2. Choose Mark Block from the Edit menu.
3. Use the UP, DOWN, LEFT, and RIGHT arrow keys to mark the block.
The selected text is highlighted.

or

1. Place the cursor where you want the block to start.
2. Hold down the SHIFT key, then press the arrow keys to mark the block. (You can use either the keypad arrow keys or the cursor arrow keys.)
The selected text is highlighted.



- Place the mouse pointer where you want the block to start. Hold down the left mouse button and move the mouse to mark the block. Release the left mouse button at the end of the desired selection.
The selected text is highlighted.

Note: If you try to move beyond the top or bottom of the screen when marking text, the text on the screen scrolls and is marked. Pressing and holding down the right mouse button while dragging will scroll the screen instead of marking the text.

❑ To cut to the Clipboard:

When you cut text from a Notepads window, the text is cut, or removed, from the file and placed on the Clipboard, replacing any text currently on the Clipboard.

1. Mark the block of text you want to cut.
2. Choose Cut to Clipboard from the Edit menu.

or

Press the shortcut keys `SHIFT - DEL`.

❏ To copy to the Clipboard:

Like the Cut to Clipboard command, the Copy to Clipboard command copies the marked text from your file to the Clipboard, but does not remove it from the file.

1. Mark the block of text you want to copy.
2. Choose Copy to Clipboard from the Edit menu.

❏ To paste from the Clipboard:

When you paste from the Clipboard, the contents of the Clipboard are copied to the Notepads file where you have placed the cursor, and the Clipboard remains unchanged.

1. Place the cursor where you want to paste the contents of the Clipboard.
2. Choose Paste from Clipboard from the Edit menu.

or

Press the shortcut keys `SHIFT - INS`.

❏ To unmark a block of text:

If you decide that the block of text you've marked is incorrect, you can unmark it.

Shortcut



- Press `ESC` or `F3` to quickly unmark a marked block.

or

- Choose Unmark Block from the Edit menu.

or

- Use the `UP`, `DOWN`, `LEFT`, and `RIGHT` arrow keys to move the cursor.



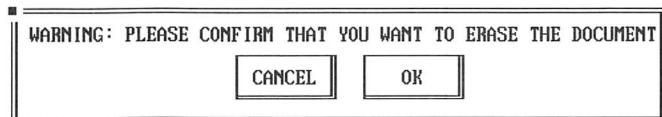
Deleting Text

- Click the left mouse button anywhere in the window.
The highlighting goes away.

The Delete All Text command deletes all of the text in a Notepads file, but does not delete the file. The file remains open in the current Notepads window, but will be empty.

❑ To delete all text:

1. Choose Delete All Text from the Edit menu.
A message box appears asking you to confirm that you want to erase all of the text.



2. Select OK to erase the document.
The text disappears and an empty Notepads window remains.

Inserting a File

The Insert File command allows you to merge a selected file with the file you are working on.

❑ To insert a file:

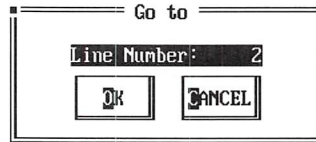
1. In the current file, place the cursor at the location you want the file to be inserted.
2. Choose Insert File from the Edit menu.
The File Load dialog box appears.
3. Select the file you want to insert using the File Load dialog box.
4. Select the Load button.
The selected file is merged with the current file and inserted at the cursor position.

Going to a Line

The line display on the status line in the upper-left corner of the Notepads window allows you to see which line the cursor is on. To move quickly through a file or to move to a particular line, use the Goto command.

❑ To go to a specific line:

1. Choose Goto from the Edit menu.
The Goto dialog box is displayed.



2. Type the number of the line you want to go to.
3. Select OK to go to the specified line.
The dialog box closes and the text and cursor are moved to the top of the Notepads window.

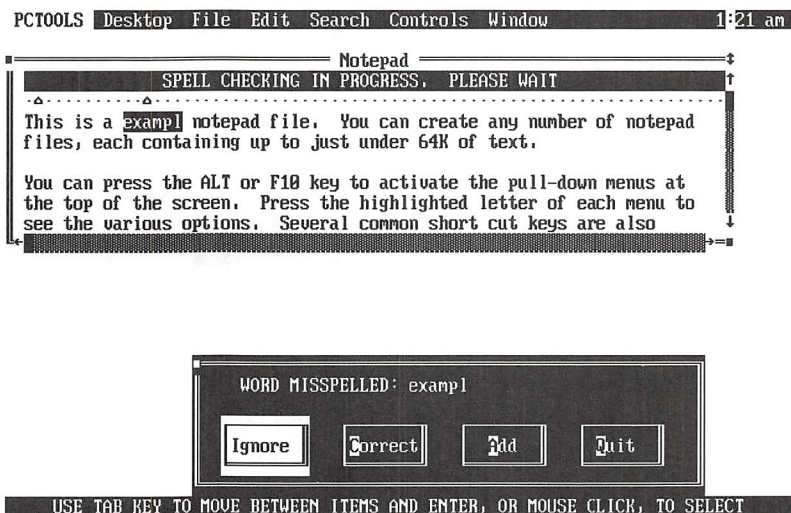
Checking Spelling

Use the Spellcheck commands (Spellcheck Word, Spellcheck Screen, Spellcheck File) to check the spelling in your Notepads files. If Notepads finds a word it does not recognize (it is not in the dictionary), it highlights the word in the document being checked and displays the word in the Word Misspelled dialog box. You can change the misspelled word, add it to the dictionary so it's not displayed again, or ignore it and continue checking spelling.

Notepads allows you to check the spelling of just one word, all of the text on the screen, or the entire file. A message is displayed under the top window border while the spelling check is in progress.

❑ To check your spelling:

1. Choose any of the spelling commands from the Edit menu depending on what you want to check.
While Notepads checks the spelling in the current screen or file, a message is displayed on the status line telling you the spelling check is in progress. If a word is not found in the dictionary, the word is displayed in the Word Misspelled dialog box and highlighted in the Notepads window.



2. Select any of the following Spellcheck options:

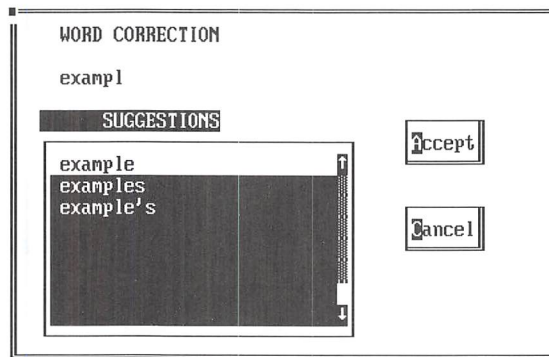
Ignore: leaves the word as it is and continues the spelling check. Closing the dialog box also continues the spelling check. Any further occurrences of the same word are also ignored.

Add: adds the word to the dictionary and continues the spelling check. Any words added to the dictionary are treated as correctly spelled words in the future.

Note: *Once you have added a word to the dictionary, you cannot delete it, so make sure you have spelled it correctly.*

Quit: leaves the word as it is, closes the dialog box, and cancels the spelling check.

Correct: displays the Word Correction dialog box shown below.



3. To change the word, press the **TAB** key to move to the text box, then type a replacement in the text box and select the **Accept** button.

or

Select a suggested spelling from the list in one of the following ways:



Scroll through the suggested spellings list with the **UP** and **DOWN** arrow keys and press **ENTER** to select the word you want, then press **ENTER** again to accept the selected word. The word is changed and the spelling check continues.



Scroll through the suggested spellings list using the mouse in the scroll bar and double-click on the word you want, then click the **Accept** button to change the word. The word is changed and the spelling check continues.

Note: Selecting the **Accept** button without following the preceding step will not change the word.

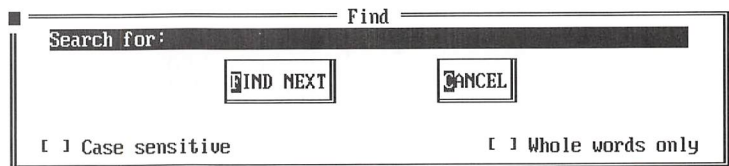
Selecting the **Cancel** button or closing the dialog box ignores the misspelled word and returns you to the previous dialog box.

Finding Text

The **Find** command searches through your file to find specified text. Beginning at the cursor, Notepads searches the file for the specified text and stops, with the cursor positioned at the beginning of the string. You can specify a string of up to 44 characters.

❑ To find text:

1. Choose Find from the Search menu.
The Find dialog box is displayed.



2. Type the character string you want to find in the Search For text box.
3. Select any of the following Find options:

Case Sensitive: finds only the specified uppercase and lowercase characters. With this option turned off, text is found regardless of its capitalization.

Whole Words Only: finds whole words only, not partial words. For example, if searching for "the," Notepads will only find "the," not "theater."

4. Select the Find Next command button.
Notepads searches the file for the specified text and stops, with the cursor positioned at the beginning of the string.

The dialog box is displayed until you close it or the last occurrence of the search text is found.

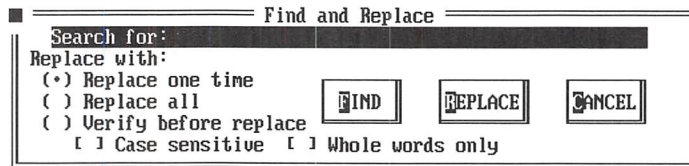
Replacing Text

The Replace command searches the file for a specified character string and replaces it with text you specify. You can specify a character string of up to 44 characters. With the Replace command, you can either review each occurrence of the string and decide whether to change it, or replace all occurrences of the text automatically.

❑ To replace text:

1. Choose Replace from the Search menu.
The Find and Replace dialog box is displayed.

4. Notepads



2. Type the text you want to find (or find and replace) in the Search For text box.
3. Type the replacement text in the Replace With text box.
4. Select any of the following Replace options:

Replace One Time: finds and replaces the next occurrence of the search text.

Replace All: replaces all the occurrences of the found text with the specified text from the cursor position to the end of the file.

Verify Before Replace: searches text from the cursor position to the end of the file, stopping at each occurrence of the word and replacing found text only when you press ENTER. If you press ESC, the command is canceled; pressing SPACEBAR skips the specified text.

Case Sensitive: finds only the specified uppercase and lowercase characters. With this option turned off, text is found regardless of its capitalization.

Whole Words Only: finds whole words only, not partial words. For example, if searching for "the," Notepads will only find "the," not "theater."

5. Select one of the Replace command buttons:

Find: finds the text, without carrying out any changes.

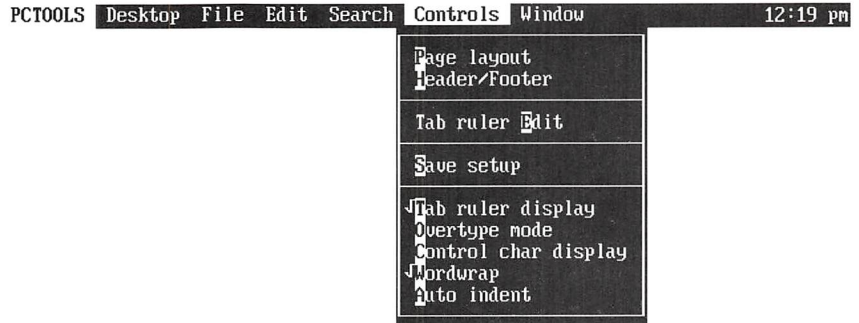
Replace: replaces the found text with the specified text.

The dialog box is displayed until you close it, the search and replace is finished, or you choose the Cancel option.

Setting Document Controls

When you first start Notepads there are default document settings: margins and headers/footers for printing; tabs, Wordwrap, and indents for editing controls. As you start working with a Notepads file, you may want to change some or all of these default settings

using the Controls menu commands. Whenever you turn a setting on, a checkmark appears to the left of the command name on the pull-down menu. When the setting is off, no checkmark will appear.



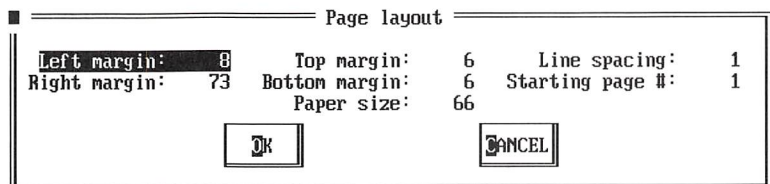
Formatting the Page for Printing

Before you print your Notepads file, you can change the margins, set line spacing options, and create headers or footers with automatic page numbering. Even though you make these additions to your file, you won't be able to see them until you print the file or choose the Disk File option in the Print command's dialog box.

When you save a file using PC Tools format (the default option), the window position, size, and colors are saved. The next time the file is opened, it will have the same window attributes. If you save files as ASCII, these formatting changes will not be preserved.

Page Layout

1. Choose Page Layout from the Controls menu.
The Page Layout dialog box appears.



2. Select any of the following Page Layout options:

Margins: sets the amount of blank space between the edges of the paper and your text. The current default settings are the following: left margin 8 spaces, right margin 73 spaces (from left edge of page), top margin 6 lines, and bottom

margin 6 lines. If you want to change the margins, type a new number in the appropriate text box.

Note: *To ensure that headers and footer are printed, the top and bottom margin settings should be set at no less than 2.*

Many printers have left margin settings, so you may need to print a sample document and make any necessary margin adjustments.

Paper Size: allows you to specify the paper size you are using to print your file. The default setting is 66 lines, which corresponds to an 8.5" x 11" sheet of paper. If you are using legal size paper (8.5" x 14"), you need to change the Paper Size setting to 84 lines. These values assume your printer is set for 6 lines per inch. If your printer is set for another value, you need to change the settings.

Line Spacing: specifies whether you want to single or double space your text.

Starting Page #: specifies the number that Notepads will assign to the first page of your text. Subsequent pages will be numbered from this starting point.

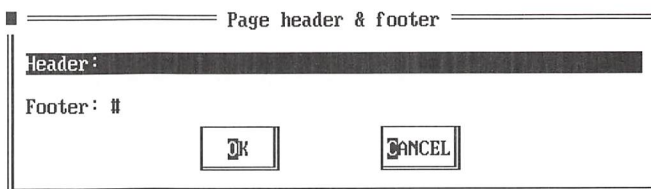
3. Select OK to set the page layout options.
The dialog box closes.

Note: *If you are printing on a laser printer, set the top and bottom margins at 2 and the paper size at 60 to ensure proper printing alignment. This is required because laser printers are set up to print within a specified area on a page.*

Header/Footer

A header is text printed in the top margin on every page of your Notepads document, and a footer appears in the bottom margin. You will not see the headers and footers on the screen unless you choose the Disk File option in the Print dialog box and load the .PRT file, but they will appear when the file is printed. Headers and footers are centered with the margins you specify. All Header/Footer selections are saved when you select the PC Tools Desktop file format option in the Save File to Disk dialog box.

1. Choose Header/Footer from the Controls menu.
The Page Header & Footer dialog box is displayed.



2. Type the header and footer text in the text boxes. You can type up to 50 characters in the text boxes.

The pound character (#) in the footer text box represents automatic page numbering and starts at page 1 by default. If you want page numbers included in the header, you must type the pound character in the Header text box. Delete the pound character if you do not want page numbers.

Note: The default setting in Notepads is for page numbers to be printed.

To change the starting page number, you need to change the Starting Page # option in the Page Layout dialog box.

3. Select OK to save your Header/Footer selections and close the dialog box.

Save Setup

With Save Setup you can save all the selections you've made in the Controls and Window menus. For example, if you usually use the same settings for margins, headers and footers, Wordwrap, overtype mode, and window colors, you can choose the Save Setup command so that every time you open a new Notepads window, you don't need to make any changes.

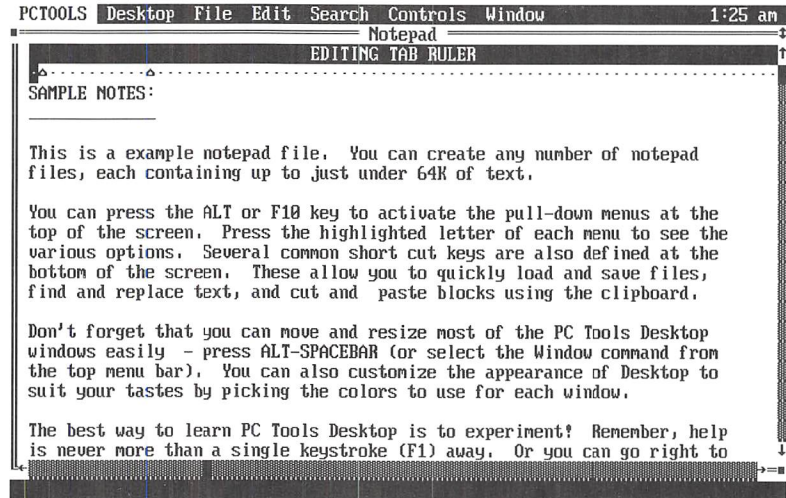
Note: The options for printing and formatting on the Controls menu are globally saved for all three PC Tools Desktop applications that use printing (Notepads, Outlines, and Databases). Unless Save Setup is used, the commands you choose on the Controls and Window menus affect only the current file.

Setting Edit Controls

To control the appearance of the text as you edit, you can turn on or off such options as the tab ruler display, automatic indent, overtype mode, Wordwrap, and control characters display. All editing controls are saved when you select the PC Tools Desktop file format option in the Save File to Disk dialog box.

□ To edit tab stops:

To position text horizontally, it is better to set a tab stop instead of adding spaces with SPACEBAR. To set or change tab stops, make sure the tab ruler setting is on so that the tab ruler is displayed across the top of the Notepads window. While you are editing tabs, a message appears in the status line.



Tab Ruler Display

The tab ruler is displayed across the top of the Notepads window and is used to determine where to place tabs. You can toggle the tab ruler display setting on or off; it is on by default.

- Choose Tab Ruler Display from the Controls menu.

Tab Ruler Edit

Make sure the Tab Ruler Display setting on the Controls menu is on.

1. Choose Tab Ruler Edit from the Controls menu.

The cursor is positioned on the tab ruler.

2. Use the LEFT and RIGHT arrow keys to position the cursor on the tab ruler to where you want a tab stop. You can also use the TAB or the END key to move forward and the SHIFT - TAB or HOME keys to move backward on the tab ruler.

3. Press the `INS` key to set a tab.
4. Press `ESC` to resume working.

❑ **To quickly set evenly spaced tabs:**

Make sure the Tab Ruler Display setting on the Controls menu is on.

1. Choose Tab Ruler Edit from the Controls menu.
The cursor is positioned on the tab ruler.
2. Enter any number between 3 and 29 to represent the number of spaces between the tab stops. (Notepads will not place tabs in intervals of less than 3 spaces.)
The default spacing between tabs is 5.
3. Press `ESC` to resume working.

❑ **To delete a tab:**

Make sure the Tab Ruler Display setting on the Controls menu is on.

1. Choose Tab Ruler Edit from the Controls menu.
The cursor is positioned on the tab ruler.
2. Use the `LEFT` and `RIGHT` arrow keys to move the cursor to the tab you want to delete. You can also use the `TAB` or the `END` key to move forward and the `SHIFT - TAB` or `HOME` keys to move backward on the tab ruler.
3. Press the `DEL` key to remove the tab stop.
4. Press `ESC` to resume working.

***Note:** To delete all tab stops, press `O`.*

Overtyping Mode

With overtype mode on, anything you type automatically types over, or replaces, the text at the cursor. With overtype mode off, Notepads is in insert mode and anything you type is inserted at the cursor. When Notepads is in insert mode “`INS`” will appear to the right of the file name in the Notepads window.

- Choose Overtyping Mode from the Controls menu to toggle this setting on or off.

or

- Press the `INS` key to toggle this setting on or off.

Control Char Display

With Control Character Display turned on, Notepads displays the carriage return, tab, and space characters in the text so you can see exact positioning.

- Choose Control Char Display from the Controls menu to toggle the setting on or off.

Wordwrap

With Wordwrap turned on, you don't need to press `ENTER` at the end of each line; your text automatically goes to the next line when you reach the right margin. If a word is incomplete at the end of the line, it moves to the next line. Wordwrap occurs just short of the scroll bar in the window, but for printing, the text is wordwrapped as defined by the Page Layout command. If you have Wordwrap turned off, you will be able to scroll through your file horizontally by pressing the right mouse button and dragging the mouse to the right or left sides of the window.

- Choose Wordwrap from the Controls menu to toggle this setting on or off.

Auto Indent

With Auto Indent turned on, text is automatically indented to line up with the first character of the previous line. This is useful if you want to indent a paragraph but don't want to press the `TAB` key at the beginning of each line.

- Choose Auto Indent from the Controls menu to toggle this setting on or off.

5. Outlines

An outline is a useful tool for creating a list of organized ideas. Outlines consist of lines of text, with each line representing a main point, or headline, followed by more specific subheadlines. Using word-processing capabilities, you can create and edit an outline for a speech or prepare an agenda for a meeting, for example. You can also use the Outlines window to create the skeleton for a presentation that you can fully flesh out in Notepads.

The advantage of an outlining program over word processing, though, is that each line of text represents levels of the outline. Level 1 is more important than Level 2, which is more important than Level 3, and so on. You can hide selected levels of headlines to see just the main ideas in Level 1, for example, to get an overview of your main points. Or you can expand the minor points in Level 3, for example, to scrutinize those details.

Using Outlines to prepare a document can save time because you perform the following tasks:

- Structure information
- Select parts of the outline for adjustment
- View selected parts of the outline by collapsing and expanding text under each headline
- Reorganize the outline with a few keystrokes
- Print the outline

Since you have the option of running PC Tools Desktop memory-resident, Outlines can be available at all times once you have loaded PC Tools Desktop. You can have instant access to outlining with as many as 15 windows at once without leaving the current application.

This chapter assumes you already know how to edit using the commands on the Notepads File, Edit, Search, and Controls menus (the commands are the same in Outlines). If you don't already know

5. Outlines

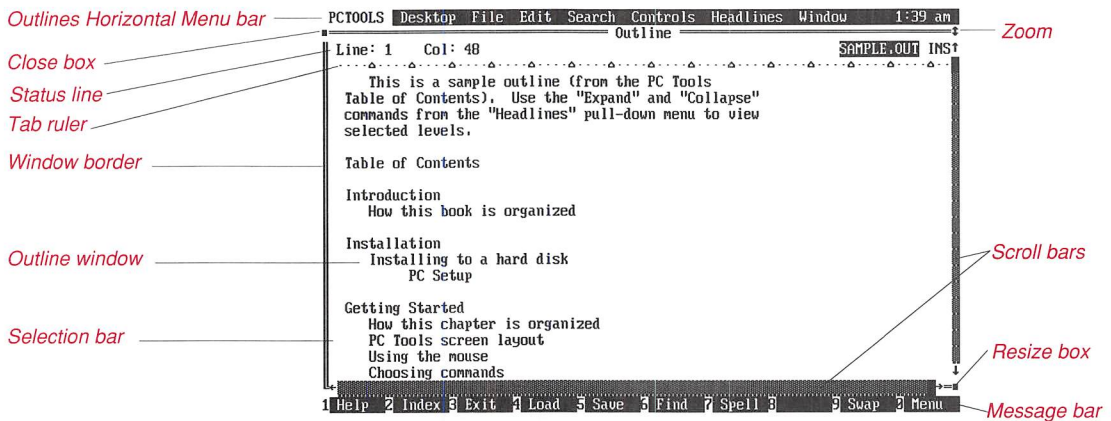
how to use the Notepads editing functions on these menus, turn to the *Notepads* chapter.

Starting Outlines

Once Outlines is chosen from the PC Tools Desktop pull-down menu, the File Load dialog box appears. See the *About PC Tools Desktop* chapter for information on using the File Load dialog box.

After an Outlines file has been loaded or created, the Outlines window (following) is displayed.

Note: You can display as many as 15 Outlines windows simultaneously by choosing Outlines again from the PC Tools Desktop pull-down menu.



The Outlines screen contains the following parts:

Outlines Horizontal Menu bar: contains the names of pull-down menus and has a time display in the far-right corner.

Close Box: used with the mouse to close a window.

Status Line: shows what line and column the cursor is on, the file name, and whether you are in insert or overtype mode. When "INS" appears in the upper-right corner of the window, you are in insert mode; otherwise, you are in overtype mode. Also displays additional information, like "Spelling in Progress."

Tab Ruler: sets and changes tab stops if the Tab Ruler Display is on.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Outlines Window: contains the text of the file you're working with.

Selection Bar: is blank space in the first column used with the mouse to select a line of text.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using Outlines when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to save your document, just press F5 or click on the Save command in the Message Bar with the mouse; this brings up the Save File to Disk dialog box.

Resize Box: used with the mouse to resize the window.

Scroll Bars: used with the mouse to move, or “scroll,” through the file.

Zoom Box: used with the mouse to expand the active window to full-screen size or to reduce the active window to the size it was before it was zoomed to full size. You can also use the Zoom command in the Window menu.

Creating an Outline

Outlines are organized according to topic or heading levels, each level distinguished from the others by amount of indentation. The main headline, or Level 1, appears near the left margin; Level 2 headlines are indented to the first tab setting, Level 3 headlines are indented to the next tab setting, and so on. The indentation is based upon the tabs you set; however, you can use the PC Tools Desktop default tab settings of five spaces.

Creating an outline can be done in a variety of ways. You can enter all the Level 1 headlines first, without switching between headline levels, then go back and insert the Level 2 headlines, or you can type in the entire outline and then establish levels afterwards. If you want, you can have multiple Level 1 headlines.

***Note:** Since tabs are used to establish headline levels, do not use tabs in the text of the outline.*

The previous illustration shows you what the outline looks like.

❑ To establish headline levels:

- Press the `TAB` key to establish headline levels as you create an outline. Once the level has been established, you can type or edit text as you normally do.

Note: The Notepads Wordwrap feature is not available in Outlines.

- When you finish a headline, press `ENTER`; the cursor stays at the same topic level.

❑ To change levels:

- Press the `BACKSPACE` key to promote the current headline or the `TAB` key to demote the current headline. (Menu options are also available for promoting and demoting headline levels.)

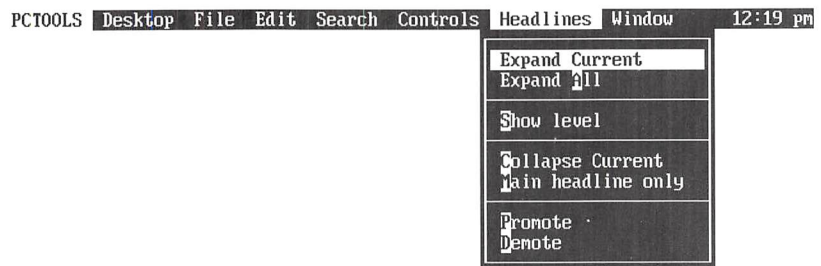
❑ To insert levels:

You can insert new levels between existing ones the way you insert new text.

- Move the cursor to the end of the line above where you want to insert the new line and press `ENTER`. The cursor moves to the beginning of the same level headline as the one above it.

Working with Headlines

The most useful feature of an outlining application is that it allows you to move quickly around in the outline. You can promote and demote headline levels and collapse and expand sections of the outline for work on specific sections of your document. The symbol ► indicates deeper levels of headlines are underneath. The Headlines menu contains the following commands:



Expanding Text

When you want to see more levels of an outline, to get the big picture, you need to expand the text so that all hidden text is displayed. You can expand the current level only, all Level 1 or Level 2 headlines, for example, or you can expand the entire outline for viewing.

To expand the current level:

This command displays all the headlines below the headline the cursor is on, if there are any.

- Choose Expand Current from the Headlines menu.
The headlines below the current headline are displayed.

To expand all levels:

If you want to expand all levels of collapsed headlines, use the Expand All command.

- Choose Expand All from the Headlines menu.
All hidden text is displayed.

Showing Levels

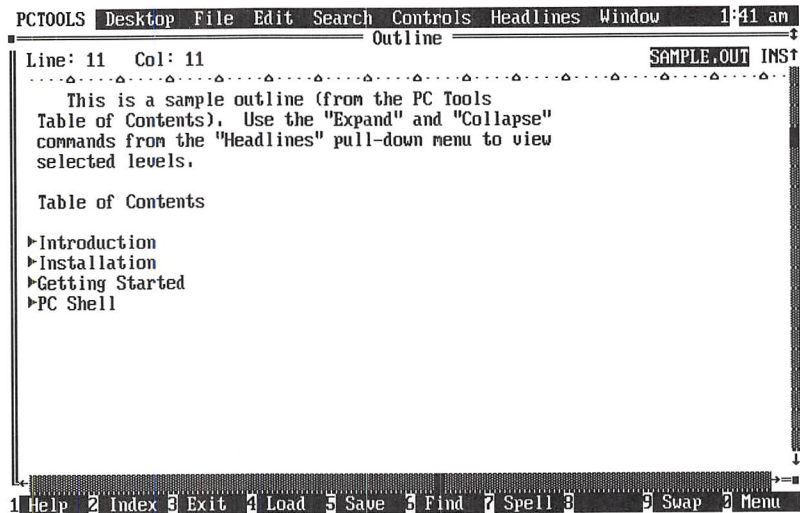
The Show Level command collapses and expands one or more headline levels for the entire outline. You might want to distribute simplified versions of your outline to your colleagues for comments (up to Level 3, for example) while keeping a complete version for yourself. For example, if your cursor is on Level 3, the outline displays Levels 1, 2, and 3, and lower-level headlines are collapsed. Since hidden text is not printed, you can use Show Level to create a simplified outline for others.

***Note:** Commands in the Headlines menu reflect the position of the cursor in an Outlines window.*

Use Show Level to display the headlines at the same level the cursor is on in the entire outline and hide any headlines below the specified level. If your cursor is on a headline Level 3, for example, and you want to see headline Levels 1 through 3 in the outline, using Show Level will hide all Level 4 and Level 5 headlines.

❑ To show a level:

1. Place the cursor anywhere in the headline.
2. Choose Show Level from the Headlines menu.
All text under the specified level in the outline is hidden and the ► symbol is placed next to the headline to indicate hidden text.



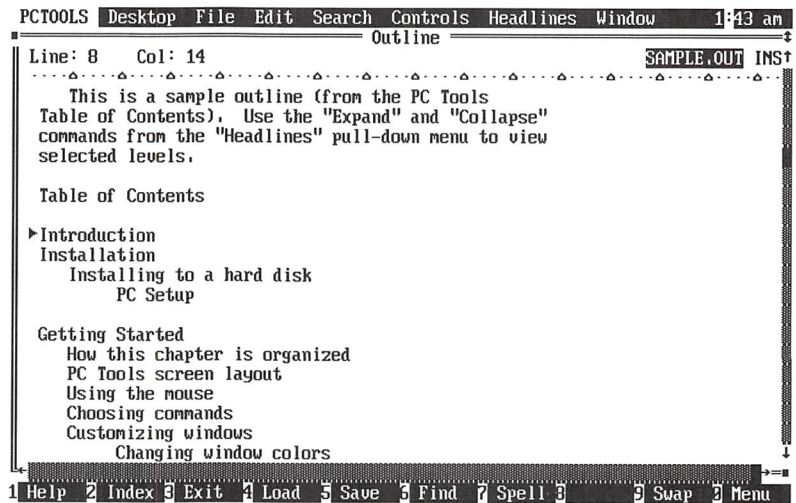
Collapsing Text

When you want to work on one section of your outline, to fill in minor points and details, you can make all the other levels of your outline go away by collapsing text. You can collapse the current level only, or you can collapse everything but the main headlines.

❑ To collapse the current level:

This command hides the levels of headlines below the headline the cursor is on, if there are any. You can compress the outline to higher and higher levels.

- Choose Collapse Current from the Headlines menu.
The headlines below the current headline are collapsed, and the ► symbol appears next to the headline indicating hidden text.



❑ To show the main headline only:

If you want to see the main ideas of your outline and hide all subheadlines for a document, use the Main Headlines Only command.

- Choose Main Headlines Only from the Headlines menu.

All text under the Level 1 headlines is hidden.

Promoting and Demoting Text

One of the most versatile features of an outlining application is its ability to let you quickly move levels of your outline. If you decide you want more details at a particular level of your outline, or you want to delete some details, or move details at Level 2 to Level 4, for example, you can quickly make changes with Promote and Demote commands.

❑ To promote a level:

Use the Promote command to move a headline to a higher level.

1. Place the cursor anyplace in the headline you want to promote.
2. Choose Promote from the Headlines menu.

The headline is promoted, and all subheadlines are repositioned accordingly.

❑ To demote a level:

Use the Demote command to move a headline to a lower level.

1. Place the cursor anyplace in the headline you want to demote.
2. Choose Demote from the Headlines menu.
The headline is demoted, and all subheadlines are repositioned.

6. Databases

Databases offer a means of organizing, storing, and managing information. As an essential business tool, databases take many forms. You probably take care of your personal business with databases such as checkbooks, address books, and phone books. Storing information in a database makes finding what you need and sorting the information easy and fast.

Computer-based databases are particularly powerful because they are so fast and flexible. The Databases application in PC Tools Desktop has many of the powerful features found in stand-alone database programs. With PC Tools Desktop, you can easily write a form letter to customers whose addresses are stored in a pre-existing dBASE database and send it to selected customers, without ever using dBASE. You can also view and print the database in a “phonebook” style, one record per line.

PC Tools Desktop Databases has the following features:

- dBASE-compatible database files
- Customized display forms created with the Notepads application
- Automatic phone dialing
- Browse mode for multiple-record viewing and editing
- Fully editable databases, including file names
- Support for multiple users on a network to view the databases

Since PC Tools Desktop can run as a memory-resident program, you can bring up a database while working on any other application to have instant access to names, addresses, phone numbers, or anything else you have stored in your database. Also, since you can have as many as 15 windows open in PC Tools Desktop, you can have several databases open at once, or have open databases along with other applications. For example, while displaying a database, you can use Notepads to modify the form file that lets you view the database in different ways.

Databases Network Support

If PC Tools Desktop is running on a network, multiple users can optionally view (read) a database at the same time, even if the users don't have write privileges. However only one network user can open a database with write privileges.

A network user with read privileges but no write privileges can always read any database, but can never write to a database. A network user *with* write privileges can write to any database unless it is already being written to by another network user with write privileges. In that case, you will get a message that the database has already been accessed for writing by another user.

Understanding Databases

To understand a database, you need to understand how information is stored. Learning and using a database is much easier if you understand these concepts:

- Records and fields
- PC Tools Desktop database files
- The database structure

In a database, you put individual pieces of information into fields that are parts of a record. Related records make up a file. If you are already familiar with these concepts and with using a database, go to "Creating a New Database" or "Using Existing Database Files."

Records and Fields

One example of a database is the customer list file shown below. Each window display is one record in the database containing all the related fields for one entry: a name, address, city, state, zip code, and telephone number, etc. Each entry is a field; for example, the address is one field in a record. Each database file, then, consists of a collection of related records.

PCTOOLS Desktop File Edit Search Controls Window 4:44 pm

Database
C:\PCTOOLS\LIST.DBF RECORD 1 OF 5

Line: 2 Col: 30 ROLODEX.FOR

Farfield

Name: Farfield, Mary

Title: UP-Sales Company: ABC, Inc.

Phone: 1-788-667-8900

Address: 123 NW Bluebonnet
Marshville, TX

Spouse: James

1 Help 2 Index 3 Exit 4 First 5 Prev 6 Next 7 Search 8 New 9 Swap 10 Menu

You also have the option of viewing and editing multiple records at one time with the Databases Browse command, which is located in the File menu. Records are arrayed horizontally instead of vertically in browse mode, with all of the field entries for one record located on one line.

PCTOOLS Desktop File Edit Search Controls Window 4:44 pm

Database
C:\PCTOOLS\LIST.DBF RECORD 1 OF 5

LAST_NAME	FIRST_NAME	TITLE	COMPANY
Farfield	Mary	UP-Sales	ABC, Inc.
Masters	Andrew	President	ACME, Inc.
Rafferty	Robert	President	Misers, Inc.
Foster	Stephen	President	Music, Inc.
Banks	Corinne	Editor	XYZ Publishing Co.

1 Help 2 Index 3 Exit 4 First 5 Prev 6 Next 7 Search 8 New 9 Swap 10 Menu

Databases uses the last-used mode as the default when you load files. For example, if you last viewed a file in browse mode, it would appear in that mode the next time you load it.

PC Tools Desktop Database Files

Each PC Tools Desktop database has three files associated with it: database files (with .DBF extensions), record files (with .REC extensions), and form files (with .FOR extensions). The extensions must be used for Databases to function correctly, and .REC and .DBF files must have the same file name.

PC Tools Desktop Databases have the following file limits:

- 4000 characters per record
- 128 fields per record
- 10,000 records per database

Database files (.DBF) are dBASE-compatible and maintain the field definitions of the database and the actual information contained in the records. If you load a dBASE file exceeding PC Tools Desktop's database limits, PC Tools Desktop will cut off the database at 10,000 records, but allows you to perform all database functions except add records and pack the database (the Pack Database command permanently erases specified records). You can, however, copy records with compatible fields between existing dBASE files and PC Tools Desktop database files.

Record files (.REC) are automatically created by PC Tools Desktop to maintain information about how to display the database. For example, when you tell PC Tools Desktop to sort the database a certain way, the sort order is maintained in the file.

***Note:** The .REC files are not dBASE-compatible and are not needed or used by dBASE.*

Form files (.FOR) are standard Notepads files that enable you to display and print the information in a database in personally styled formats. If you don't want to create your own form, a default form file is created for you with the same file name as the database file, but with the .FOR extension.

The Database Structure

Before entering data into a database and using it, you need to plan its structure by naming the fields in a record, deciding the size of a field, and defining the field types. When you manipulate data, you use field names to recall and refer to data stored in those fields. For instance, you might use the field name ADDRESS to hold addresses, ZIP to hold zip codes, AGE to hold ages, and so on.

PC Tools Desktop supports four field types: character, numeric, logical, and date. Each field is defined according to the size and type of data it can store.

The field names, types, and sizes to be used when you are creating your database are discussed below.

Note: Another field type, *memo*, is used in dBASE files and is not supported in PC Tools Desktop, which means it will be ignored.

Field Name: names the field. Example field names for the customer list database are FIRST_NAME, LAST_NAME, PHONE, ADDRESS, CITY, STATE, and ZIP.

Field Size: specifies the maximum number of characters allowed in a field. By specifying the dimension of a data field, you reserve the necessary storage space for anticipated data items.

Field Type: specifies what kind of data is allowed for each field. Field types are character, numeric, logical, or date. When you specify the field type, you dictate how the data in the field is to be used. If you define a field as numeric, the items stored in the field can be used in dBASE formulas. Data stored in fields defined as character fields, on the other hand, can be used only as a label or as the object of search and sort operations. Character fields can never be included in a formula.

Creating a New Database

Once Databases is chosen from the PC Tools Desktop pull-down menu, the File Load dialog box appears for you to specify the name of a database file (.DBF) to load. Only files with the .DBF extension are listed. You can select an existing database file to load or create a new file and build a new database. See the *About PC Tools Desktop* chapter for information on using the File Load dialog box.

This section shows you how to perform the following:

- Define the structure of a new database
- Customize a new form file

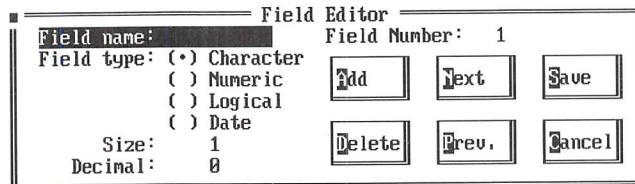
Note: When you load an existing database, the Databases window appears, ready for you to add or edit records. See “Using Existing Database Files” if you are working with an existing database.

Defining the Structure of a New Database

When creating a new database, you first need to create a .DBF file to contain the database. Secondly, you need to specify the database structure by entering the field names, types, and sizes that make up the records.

Important: Character fields with 3 or more consecutive numbers (ignoring spaces, dashes, and parentheses) are accepted as valid phone numbers when you use the Autodialer. Therefore, it is recommended that you put phone number fields before any other fields containing numbers when you are defining your record structure. See the Autodialer chapter for more detail.

Entering a file name with a .DBF extension and choosing the New command button in the File Load dialog box creates a new file. The Field Editor dialog box appears for you to define the fields for your new database.



The parts of the Field Editor dialog box are explained below:

Field Name Text Box: where you enter the name you want to assign a field. Legal characters are letters, the underscore character (_), ASCII graphics characters, and numbers. If you are creating a database to hold names and addresses, like the example customer list file, you might name a field FIRST_NAME. Field names can be no longer than 10 characters and must begin with a letter. Lowercase letters are converted to uppercase, and underscores are used to separate words. Blank field names are not allowed.

Field Type: where you select the type of data to be entered into a field. You can use four field types: character, numeric, logical, and date.

Character fields: consist of any letters (A-Z); numbers (0-9) that are used for identification (for example, telephone numbers, numbers in addresses, or social security numbers); special symbols (#, \$, *, &); the underscore character (_); and ASCII graphics characters (which you can insert by pressing the ALT key along with ASCII decimal equivalent; for example, pressing ALT-7 gives you a bullet, ASCII character •).

You can have 70 characters per field. Since dBASE allows 254 characters, if you are copying records from dBASE, any information longer than 70 characters in a character field will not be copied. The default character field is 1 character.

Numeric fields: consist of any number or value that is used in computations (for example, entries in a checkbook register or tax form). PC Tools Desktop does not perform computations on the database, but you can store values in numeric fields for use in dBASE.

Also considered part of a numeric field are a decimal point (.), a plus sign (+), and a minus sign (-) associated with a number. The + and - signs are optional at the beginning of the number, and the position of the decimal place is fixed once you have set it, which means if you enter too many digits after the decimal point, they are cut off. If you enter too few, zeros are entered for you. The fixed decimal position means that numeric fields displayed in columns will have decimal points aligned. You can have 19 characters per field. The default numeric field is 0.

Logical fields: consist of a single character representing a true or false condition. True is represented as T, t, Y, or y. False is represented as F, f, N, or n. A logical field can be used to divide the contents of a database file into two groups: one for which the condition is true and another for which the condition is false. For example, a doctor with a database of patient billing records can use T in the logical field to indicate the patient has paid and F to indicate the patient has not paid the bill. The default logical field is F.

Date fields: consist of eight characters that store numeric codes for the month, day, and year, in the following form: MM/DD/YY. Date fields assume the 20th century. The default date field is 00/00/00. Date fields are used only as dates in the data manipulation; they cannot be used in dBASE formulas.

Size Text Box: where you specify the character length of a particular field. This size is determined by the longest item you plan to enter in that field. If the longest city in your database has 20 characters, for example, you need to specify the size of the CITY field as 20 even though some of the cities require fewer than 20 letters.

The size limits vary depending on field types: character fields allow up to 70 characters (default field size is set at 1 character); logical

fields only allow one character, so the size is set at 1; and date fields always allow 8 characters, so the size is set at 8.

Although numeric fields allow up to 19 characters, the size is defined two ways. First define the maximum number of digits allowed in the value. Then determine the number of digits to appear to the right of the decimal point. The default is set at 1 with 0 for decimal. The decimal point counts as one character.

Decimal Text Box: where you specify how many decimal places are to be included to the right of the decimal point in numeric fields. For example, if you specify 3, every numeric value has three decimal places: 9.000, 4.987, and 0.988. When you add character, date, or logical fields, the decimal is set at 0.

Field Number: indicates the current field. You can move through the fields by selecting the Next and Previous buttons if you want to change fields before closing the dialog box.

Add: adds the current field definition to the database and automatically appends a new field if the field added was the last one in the database.

Next: selects the next field. This options enables you to move forward through the fields.

Save: saves all the added field definitions to the database and closes the dialog box. The field definitions are then displayed in the default form. You need to save the database structure before continuing and adding records to the database.

Delete: deletes the selected field. Use the Next and Previous buttons to move through and select fields.

Previous: selects the previous field. This options enables you to move backward through the fields.

Cancel: cancels the database creation and returns you to the PC Tools Desktop menu without saving the database. You can also cancel by clicking on the close box or pressing the ESC key.

❑ To create a new database:

Note: Character fields with 3 or more consecutive numbers (ignoring spaces, dashes, and parentheses) are accepted as valid phone numbers when you use the Autodialer. Therefore, it is recommended that you put phone number fields before any other fields containing numbers when you are defining your record structure. See the Autodialer chapter for more detail.

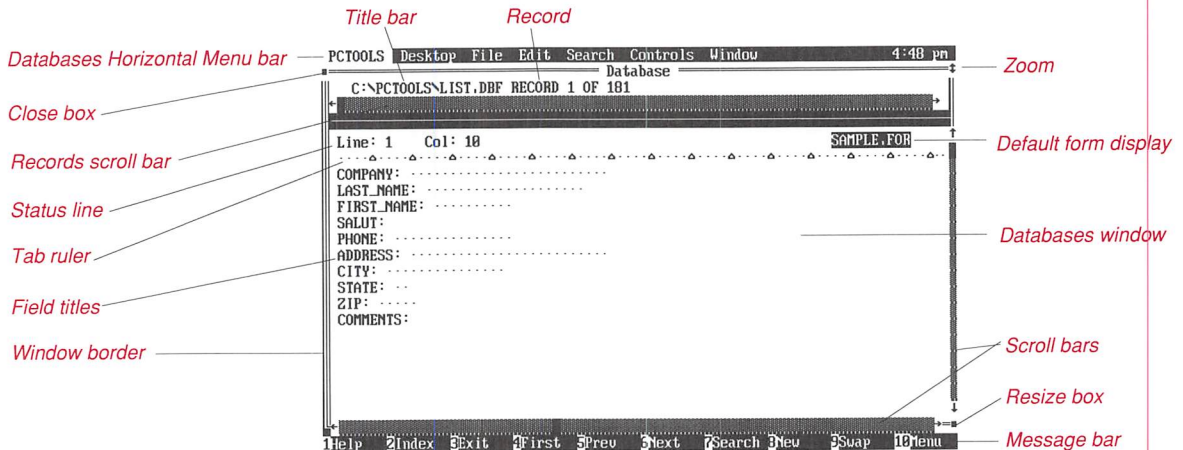
1. Type the field name in the Field Name text box.
It doesn't matter if you type in uppercase or lowercase; field names are converted to uppercase.
2. Select the Field Type option button you want.
The Field Size default is automatically set when the field types logical or date are added. In the case of character and numeric field types, the Size text box can be selected and the size changed. When selecting numeric fields, you can also select the Decimal box to change the decimal position.
3. Select the Add command button.
The field structure is created, and the text boxes appear empty again, ready for you to define the next field.
4. When finished adding fields, select the Save command button.

The dialog box closes, and an empty record is displayed in browse mode format. Your field names are listed across the top of the screen in the Databases window. When records are added, you will see the information displayed on the screen below the field names, with one record on each line. See "Editing Records and Fields" for an explanation of how to add and edit records.

Alternatively, you can turn browse mode off to display the database with the default form file (see "Browse Mode").

The Databases Screen

When a new database file is displayed with the default form file, each empty record looks like the illustration below. Field names are listed on the left side of the screen, and dotted lines indicate the length of each available field. As you insert information into each field, it replaces the dotted lines.



The Databases screen contains the following parts:

Record: shows which record is currently displayed (edit mode) or selected (browse mode). In edit mode, you can display different records by scrolling through the records with the records scroll bar, using the F4 - F7 keys, or by using the Goto Record command from the Search menu.

Title Bar: displays the database file name.

Databases Horizontal Menu Bar: contains the names of pull-down menus and a time display in the far-right corner.

Close Box: used with the mouse to close the window.

Records Scroll Bar: in edit mode, used with the mouse to scroll through and display records.

Status Line: in edit mode, shows what line and column the cursor is on and the form file name associated with the database.

Tab Ruler: in edit mode, shows where the tabs have been set.

Field Titles: in browse mode displays the names of the fields contained in the current file.

Window Border: indicates the active window with a double border. The inactive window has a single-line border.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using Databases when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to add a new record just press F8 or click anyplace with the mouse on the New command in the Message Bar; this displays a new record.

Resize Box: used with the mouse to resize the window.

Scroll Bars: used with the mouse to move, or “scroll,” through the current record.

Databases Window: in edit mode, displays one record at a time from the database file you are working on; in browse mode displays up to 18 phonebook-like rows of records (up to 36/43 records if you are working in 43/50-line display).

Default Form Display: in edit mode, shows the field names (like NAME, PHONE, and ADDRESS), followed by a colon, then field data.

Zoom Box: used with the mouse to expand the active window to full-screen size or to reduce the window to the size it was before it was zoomed. You can also use the Zoom command in the Window menu.

***Note:** If you don't like the way data is displayed and want to create your own form see “Customizing a New Form File.” If you want to display your data using an existing form, see “Loading an Existing Form File.”*

Customizing a New Form File

A form file contains a description of how you want to display or print the contents of a database. Customized display forms are like fill-in-the-blank forms; when you design your form, you put field names in brackets []. Like filling in a blank form, when you load your database records and display them in the form, the information from the database records replaces the field names on the form.

6. Databases

The following example uses examples of a customer list and a form letter to show you how the same database can be used with many form files. The following customer list record shows you how the database looks when you use a form that looks like a customer list.

The screenshot shows the PC Tools Desktop interface. The menu bar includes Desktop, File, Edit, Search, Controls, and Window. The status bar at the top right shows 4:44 pm. The main window title is 'Database' and the file path is 'C:\PCTOOLS\LIST.DBF RECORD 1 OF 5'. The record is displayed in a form-like layout with the following fields:

Line: 2	Col: 30	ROLODEX.FOR
Farfield		
Name:	Farfield, Mary	
Title:	VP-Sales	Company: ABC, Inc.
Phone:	1-788-667-8900	
Address:	123 NW Bluebonnet	
	Marshville, TX	
Spouse:	James	

The bottom status bar contains the following menu items: 1 Help, 2 Index, 3 Exit, 4 First, 5 Prev, 6 Next, 7 Search, 8 New, 9 Swap, 10 Menu.

With PC Tools Desktop, you can customize your own form file or use the default form file to display your records. The default form file is automatically created for you when you create a new database and is given the same file name as the database, but with the .FOR extension. In the default form, all labels for fields in the database are listed in sequence followed by a colon and a space then the field names in brackets []. The record data appears the same color as the ruler and status lines, so you can easily locate fields in a form. For most data entry and editing operations, the default form will be sufficient.

```

PCTOOLS Desktop File Edit Search Controls Window 4:48 pm
Notepad
Line: 1 Col: 1
SAMPLE.FOR INST
-----
COMPANY: [COMPANY]
LAST_NAME: [LAST_NAME]
FIRST_NAME: [FIRST_NAME]
SALUT: [SALUT]
PHONE: [PHONE]
ADDRESS: [ADDRESS]
CITY: [CITY]
STATE: [STATE]
ZIP: [ZIP]
COMMENTS: [COMMENTS]
-----
Help 2Index 3Exit 4First 5Prev 6Next 7Search 8New 9Swap 10Menu

```

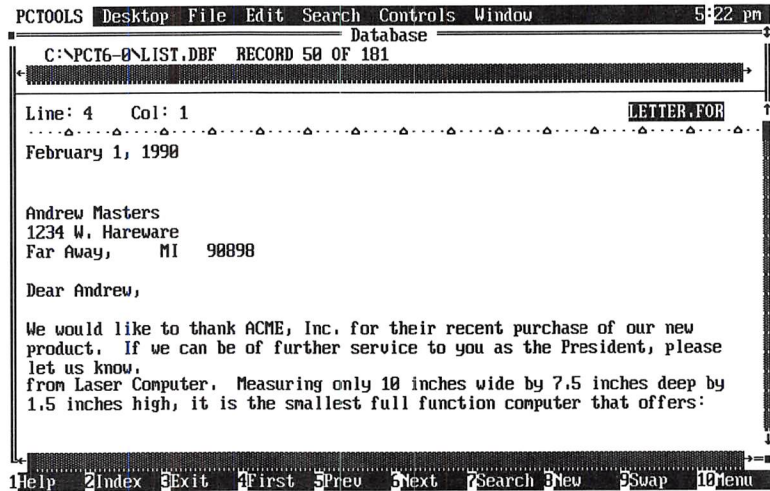
PC Tools Desktop offers you the flexibility of creating your own customized form files so you can display and print the data fields in your database in any number of formats.

```

PCTOOLS Desktop File Edit Search Controls Window 4:48 pm
Notepad
Line: 1 Col: 1
ROLODEX.FOR INST
-----
[LAST_NAME]
Name: [LAST_NAME], [FIRST_NAME]
Title: [TITLE] Company: [COMPANY]
Phone: [PHONE]
Address: [ADDRESS]
[CITY], [STATE] [ZIP_CODE]
Spouse: [SPOUSE]
-----
Help 2Index 3Exit 4First 5Prev 6Next 7Search 8New 9Swap 10Menu

```

You can also write a form letter using field names from the same database in one or more places in the letter. Then when you load the form, the information contained in records in your database is inserted in the letter. You can print the letters and have them sent to customers whose names and address records are contained in the same database you displayed in the customer list form.



Creating a new customized form is done using the Notepads application. You can place your field names anywhere in the file, move them around, and provide additional text.

❑ To create a new form:

1. Choose Notepads from the PC Tools Desktop pull-down menu.
The File Load dialog box appears.
2. Type a file name with a .FOR extension in the Filename text box. The file name needs to be a different name than the database file name.
3. Select the New command button.
A blank Notepads window appears for you to write the text.
4. Write your text using the Notepads editing functions.
All field names must be enclosed in brackets []. When the form is used to display or print a record in the database, the field enclosed in brackets is replaced with data from the database. The field names in brackets must match the field names in the database or no record data will be retrieved and displayed in the form.

The following shows the letter form as it appears in a Notepads window.

```

PCTOOLS Desktop File Edit Search Controls Window 5:23 pm
Notepad
Line: 1 Col: 1 LETTER.FOR INS↑
February 1, 1998

[FIRST_NAME] [LAST_NAME]
[ADDRESS]
[CITY], [STATE] [ZIP]

Dear [FIRST_NAME]:

We would like to introduce you to the Compunote line of travel computers
from Laser Computer. Measuring only 18 inches wide by 7.5 inches deep by
1.5 inches high, it is the smallest full function computer that offers:

Full travel standard keyboard
LCD display
Extensive internal software, including:
  
```

1Help 2Index 3Exit 4Load 5Save 6Find 7Spell 8 9Swap 10Menu

5. Save and close the Notepads file.

If you save the file as a PC Tools Desktop Notepads file, whatever document control settings you choose, such as automatic indent, Wordwrap, tab positions, and page layout for printing remain set when you load the form into Databases. If the form file is saved as an ASCII file, the tab information will be the same as in the Notepads file, and the window color, size, and placement information will be contained in the .REC file, so what you see won't change.

To place text or fields in specific positions on the form, use a tab. Tabs bind text to them so that even if the record data for a particular field is shorter or longer than the actual field name, the subsequent record data is positioned where you want it.

For example, if you have defined a field size smaller than the actual field name, like STATE, which has a field size of two characters, the field name in brackets will be longer than the actual data display. However using a tab after the STATE field positions the zip codes where you want them displayed.

For example, on the form your text looks like the following:

[CITY], [STATE] [ZIP]

When the record information is displayed, the form is adjusted to display the information contained in the specified field names and the ZIP fields align.

Beaverton, OR	97006
Evergreen Park, IL	60642
Austin, TX	78767

Or, if you have defined a field size larger than the actual field name, like a LAST_NAME field of 15 characters, the record information will take up as much room on the line as it needs to display the information even though the field name LAST_NAME only takes nine characters.

[LAST_NAME],	[FIRST_NAME]
Arros,	Carolyn
Banks,	Don
Crowe,	Jack
Decker,	Paula
Eaverhouser,	Horatio
Frankensteiner,	Frances

To set up a form similar to the preceding example:

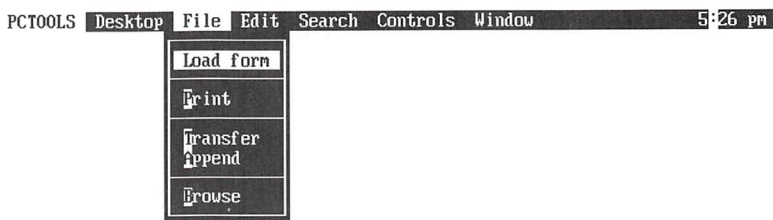
1. Switch to the Notepads application and create a new .FOR file.
2. Choose the Tab Ruler Edit command from the Controls menu.
3. Press 0 to clear all existing tab stops.
4. Use the LEFT and RIGHT arrow keys to position the cursor on the tab ruler to where you want a tab stop.
5. Press INSERT to set a tab.
6. Press ESC to get out of tab ruler edit mode and to save the settings.
7. Insert the field names at the predetermined tab stops. All field names must be enclosed in brackets.
8. Choose the Page Layout command from the Controls menu.

9. Set the Top Margin and Bottom Margin options to 0 and the Paper Size option to 1.
10. Press OK.

Note: You can't use headers and footers with the Databases forms.

Using Existing Database Files

If you already use dBASE and have files you want to use in PC Tools Desktop, or you want to create records in PC Tools Desktop and copy them to dBASE, you can. dBASE allows you to copy records to and from PC Tools Desktop database files. You can also load an existing form and print records from your database file using commands from the File menu.



Loading Form Files

One of the unique features of PC Tools Desktop Databases is that you have the option of designing and creating your own form file to display database records, or you can use the default form file that is automatically created when you create a new database file.

Form files must have the .FOR extension. When a database file is loaded, the database manager creates the default form file, giving it the same file name as the database file, but with the .FOR extension.

If you don't want to use the default form file, you can load any other forms you have created for the current database.

- Choose Load Form from the File menu.
The File Load dialog box appears for you to select a file from the list box.

Once the form file is loaded, the window display of the database is changed to reflect the new form file.

Printing in Edit Mode

The Print command allows you to print all or selected database records as they appear using the current form file. For example, you can write a form letter, then select the records from the database containing the names and addresses you want to send the letter to, then print the letter to send to the names on the selected records. The

Print command also prints the field names associated with the database file.

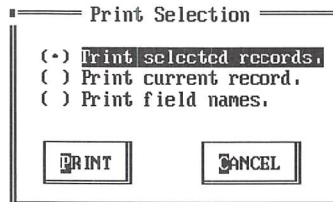
You can also make use of your printer's formatting capabilities such as boldface, italics, and underlining by inserting printer control macros into your form file. We have included a simple way to send setup commands to your printer for your favorite font, type size, printing mode, and such by using a macro called SETUP.

To make your printing task easier, PC Tools Desktop supplies you with macros for the Epson FX-80, the IBM Proprinter, Hewlett-Packard's Laserjet, and any Panasonic printer. See the "To build printer control macros" section in the *Macro Editor* chapter to learn how to add printing commands to your database and to learn how to use the SETUP macro.

❑ To print records or field names in edit mode:

Note: Before you start printing, make sure your printer is connected and turned on and you have selected the margin settings you want using the Page Layout command from the Controls menu.

1. Choose Print from the File menu.
The Databases Print Selection dialog box appears.



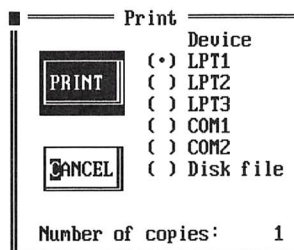
2. Select any one of the following print options:

Print Selected Records: prints only those records previously marked as selected as they appear in the current form file.

Print Current Record: prints the currently displayed record as it appears in the current form file.

Print Field Names: prints the list of field names used in the database. This option is useful when creating forms.

3. Select Print to start printing.
The Print dialog box appears.



4. Select one of the following Device options:

LPT (1, 2, or 3): selects a parallel printer port. Printer port number 1 is the default.

COM (1, 2): selects a serial printer port.

Disk File: formats and saves the text for printing and writes the file to disk (in the directory the file was loaded from) for printing at a later date. The print file name consists of the same file name with a .PRT extension.

5. Enter the number of copies you want to print.
6. Select Print to start printing.

Selecting Cancel closes the dialog box without saving any of the options.

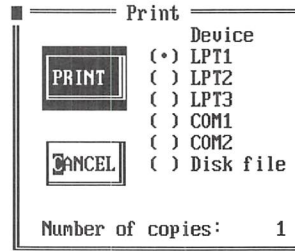
Printing in Browse Mode

If you print while in browse mode, the field names will appear horizontally across the top of every page, followed by the records, one per line. This is a good way to print a phone list. The records will be printed just as they appear on the screen.

❑ To print records or field names in Browse mode:

Note: Before you start printing, make sure your printer is connected and turned on.

1. Choose Browse from the File menu.
2. Choose Print from the File menu.
The Print dialog box appears.



3. Select one of the following Device options:

LPT (1, 2, or 3): selects a parallel printer port. Printer port number 1 is the default.

COM (1, 2): selects a serial printer port.

Disk File: formats and saves the text for printing and writes the file to disk (in the directory the file was loaded from) for printing at a later date. The print file name consists of the same file name with a .PRT extension.

4. Enter the number of copies you want to print.
5. Select Print to start printing.

Selecting Cancel closes the dialog box without saving any of the options.

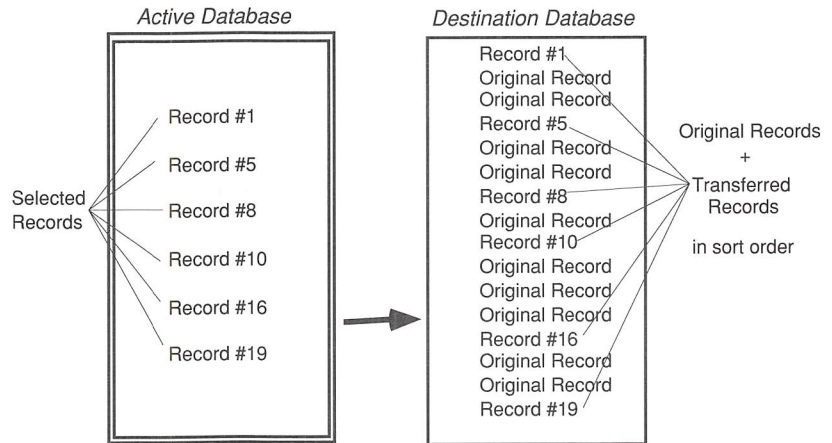
Transferring Records

The Transfer command allows you to transfer selected records from the currently active database to another database. This lets you transfer similar data from one database file to another without having to re-enter it.

For example, assume you have one database file containing the names and phone numbers of your friends and another database file containing the names and phone numbers of your business associates. You plan to have a large party and want to print a combined alphabetical invitation list of all your friends and your *local* business associates. First, select only those records from your BUSINESS database that contain the names of business associates in your city. Then, using the Transfer command, you can transfer all records from the BUSINESS (active) database to the FRIENDS (destination) database.

After you are finished, your FRIENDS database will contain the names of all your friends and local business associates.

The following diagram illustrates the concept of transferring records.



❑ To transfer records:

1. Open the database containing the records you want to transfer to another file.
2. Select the records you want to transfer by using the Select Records command from the Edit menu (this is explained in the "Selecting Records" section later in this chapter). If you want to transfer all records in the file, skip this step.
3. Choose Transfer from the File menu. The Transfer dialog box is activated.
4. Select the destination database you want to transfer to.

If the destination database has fields the active database does not, the Field Defaults dialog box will appear asking you to enter a default value that will appear for all records.

5. Type in what you want the default to be for all records (such as N/A) or enter nothing if you don't want anything to appear in the field.
6. Press ENTER or click on the close box. The Field Defaults dialog box will appear for each field in the destination file not contained in the active file. After the last default value is entered, the transfer will be performed. Records will automatically be sorted in the destination

database according to the sort order you selected with the Sort Database command.

To ensure that the correct records were transferred, open the destination database.

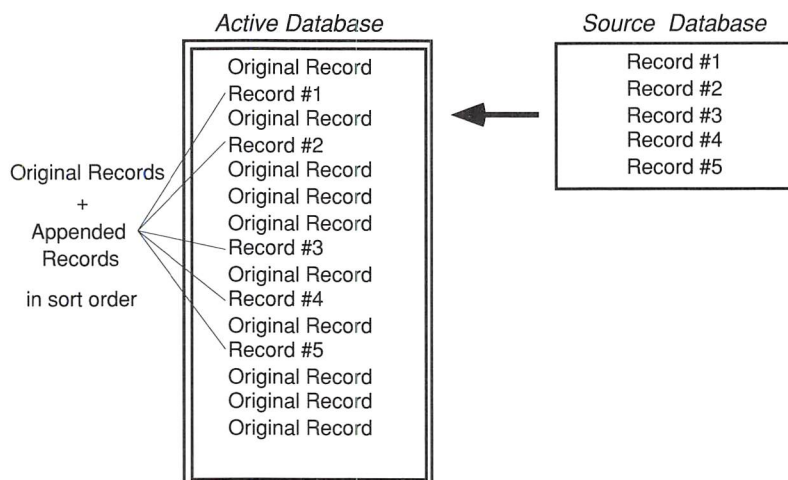
Note: If the active database has fields the destination database does not contain, they will not be transferred.

Appending Files

The Append command allows you to append *all* records from another database to the end of the currently active database.

For example, assume you own a mail-order business and decide to purchase a new mailing list that is in a database. You would simply open your database, then append the new database to it.

The following diagram illustrates the concept of appending files:



Note: In the following procedure, the database that you are appending is called the source database and the database you are appending to is called the active database.

❑ To append a file:

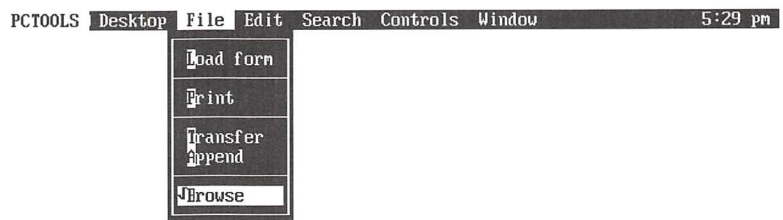
1. Open the database you want to append the other database records to. (This is the active database.)

2. Choose Append from the File menu.
The Append dialog box appears for you to select the source database.
3. Select the source database you want to append then choose the Select command button.
4. If the active database has fields the source database does not, the Field Defaults dialog box will be activated:
5. Type in what you want the default to be or enter nothing if you don't want anything to appear in the field.
6. Press ENTER or click on the close box.
The Field Defaults dialog box will appear for each field in the active database not contained in the source database. After the last default value is entered, the append will be performed and the active database will reflect the changes. Records will automatically be sorted according to the sort order you selected with the Sort Database command.

Note: If you have a source database with a field the active database does not contain, Databases will ignore it and the data in that field will not be appended.

Browse Mode

The Browse command in the File menu allows you to display multiple records at the same time in a horizontal format, with all fields in a given record located on the same line. A check mark appears next to the Browse command when it is selected. All database functions are available in both edit and browse mode.



Note: Edit key functions are outlined later in this chapter.

❑ To switch Databases to browse mode:

1. Choose Browse from the File menu.

- 2. Databases switches from edit mode to browse mode. (You can switch back to edit mode by selecting the Brwse command again.)

PCTOOLS Desktop File Edit Search Controls Window 4:44 pm

Database
C:\PCTOOLS\LIST.DBF RECORD 1 OF 5

LAST_NAME	FIRST_NAME	TITLE	COMPANY
Farfield	Mary	UP-Sales	ABC, Inc.
Masters	Andrew	President	ACME, Inc.
Rafferty	Robert	President	Misers, Inc.
Foster	Stephen	President	Music, Inc.
Banks	Corinne	Editor	XYZ Publishing Co.

1Help 2Index 3Exit 4First 5Prev 6Next 7Search 8New 9Swap 10Menu



To view additional fields that don't fit on the browse mode display, you can use the mouse with both the horizontal and vertical scroll bars to scroll up and down and left and right through a database file, as well as the right mouse button to scroll vertically and horizontally. You can also select a field to highlight by simply clicking on it with the mouse.



You can also use the TAB key to move across the screen and bring more fields into view. You can also use SHIFT-TAB to move in the opposite direction.

After switching to browse mode, a highlight bar appears in the first field of the first record unless you had been viewing the file in edit mode. If that is the case, the first field in whatever record you were viewing is highlighted. The field where the highlight bar is positioned also contains the cursor, which allows you to edit. Editing functions in browse mode work in the same way as in edit mode.

When working in browse mode, the fields displayed include those listed in the corresponding form. You can change the fields displayed by creating a different form.

Editing Records and Fields

Like an address book, a database file keeps a collection of related records that needs updating and changing from time to time. Editing records and fields in the database allows you to add or change any of

the information in your database and always keep your records up to date. When you want to add records to a new database or make changes to the records in an existing database, you need to perform basic editing tasks.



❑ To edit text using the keyboard:

The keystrokes you need to know to move around in a record in either browse or edit mode are displayed in the following table:

To	Press
Move to the next field	TAB key
Move to the previous field	SHIFT - TAB key
Move to the beginning of a field	HOME
Move to the end of a field	END
Move cursor up one line	UP arrow key
Move cursor down one line	DOWN arrow key
Move cursor left one character	LEFT arrow key
Move cursor right one character	RIGHT arrow key
Move left one word	CTRL - LEFT arrow
Move right one word	CTRL - RIGHT arrow
Move to the beginning of a record	HOME twice
Move to the beginning of the file/form	CTRL - HOME
Move to the end of the file/form	CTRL - END
Move to the beginning of a window	HOME twice
Move to the end of a window	END twice
Scroll text up one window	PGUP
Scroll text down one window	PGDN
Scroll up one line without moving cursor	CTRL - PGUP
Scroll down one line without moving cursor	CTRL - PGDN
To cancel an edit	ESC
Switch from overtype to insert mode	INS

Note: In browse mode, the HOME and END keys perform different functions, depending on where the cursor is located. If you are in the middle of a field other than the first field of a record, pressing HOME moves you to the beginning of that field. Pressing HOME again moves you to the beginning of a

record, pressing HOME again moves you to the beginning of a window, and pressing HOME still another time moves you to the beginning of a file. Conversely, if you are in the middle of a field other than the last field of a record, pressing END in the same pattern takes you to the end of that field, end of record, end of window, and end of file, respectively.



❑ To edit using the mouse:

- You can use the mouse to position the cursor by pointing and clicking. The Edit pull-down menu provides commands for editing records and fields.

Adding New Records

Once you have created the field definitions and selected or designed a form to display the data, you add new records by choosing the Add New Record command and then entering the actual information contained within each record. Records are added to the beginning of a database file.

Note: *Type your record information the way you want it to appear and be printed. For example, capitalize people's names, put periods after abbreviations, etc.*

❑ To add a record in edit mode:

1. Choose Add New Record from the Edit menu or press F8. An empty record is added to the beginning of the database and is displayed in the form you selected or created.
2. Position the cursor anywhere in the record you want to type using the keyboard or the mouse.
3. Type the information you want into the field. The database is in overtype mode by default, which means text is overwritten as you type. To change to insert mode, press the INSERT key.
4. Press ENTER or TAB to add the data in the field. The data is automatically saved and updated on the screen, and the cursor is positioned at the beginning of the next field. Pressing ESC or F3 cancels the edit.

Once data has been added to the record, the record is placed in sort order in the database. Thus, if you add a new record to the example and the database is sorted on the company, the new record will appear in the sorted position by company name.

In browse mode, adding a record is a similar process:

❑ **To add a record in browse mode:**

1. Choose Add New Record from the Edit menu or press F8. An empty record is added to the beginning of the database and the first field is highlighted.
2. Position the cursor anywhere in the record you want to type using the keyboard or the mouse.
3. Type the information you want into the field. The database is in overtyping mode by default, which means text is overwritten as you type. To change to insert mode, press the `INS` key.
4. Press `ENTER` to add the data in the field. The data is automatically saved and updated on the screen, and the cursor is positioned at the beginning of the next field. Pressing `ESC` or `F3` cancels the edit.

Once data has been added to the record, the record is placed in sort order in the database. Thus, if you add a new record to the example and the database is sorted on the company, the new record will appear in the sorted position by company name.

Note: Type your record information the way you want it to appear and be printed. For example, capitalize people's names, put periods after abbreviations, etc.

If you are using an existing database file and want to change some of the information in the records, you need to edit the records.

❑ **To edit existing records:**

1. Position the cursor anywhere in the field you want to edit, but not on the actual field name.
2. Change the field by typing the information you want in the field. Editing is in overtyping mode by default; to change to insert mode, press the `INSERT` key.
3. Press `ENTER` or `TAB` to add the data to the field. The data is automatically saved and updated on the screen, and the cursor is positioned at the beginning of the next field. Pressing `ESC` or `F3` cancels the edit.

Continue editing at the next field. When you are finished editing a record, select another record by using the scroll bar and the mouse, choosing the Goto Record command from the Search menu, or pressing the shortcut keys shown on the bottom of your screen.

Note: When you edit the sort field, the edited record will be placed in sorted order when the data is entered.

❑ To edit existing records in browse mode:

1. Position the cursor anywhere in the field you want to edit.
2. Change the field by typing the information you want in the field. Editing is in overwrite mode by default; to change to insert mode, press the `INSERT` key.
3. Press `ENTER` to add the data in the field.
The data is automatically saved and updated on the screen, and the cursor is positioned at the beginning of the next field. Pressing `ESC` or `F3` cancels the edit.

Continue editing at the next field. When you are finished editing a record, select another record by either clicking on it with the mouse, or with the `UP` and `DOWN` arrow keys. You can also choose the Goto Record command from the Search menu or press the shortcut keys shown on the bottom of your screen.

Note: When you edit the sort field, the edited record will be placed in sorted order when the data is entered.

Deleting Records

The Delete Record command does not permanently delete a record. Instead, the record is marked for deletion and can no longer be displayed until you undelete it. Since the record is still physically in the database, you can easily view it again by using the Undelete Records command. Packing the database permanently removes previously deleted records. This function should be used only when you want to permanently erase records from your database.

Note: The database is designed to have at least one viewable record. If you delete the last record in the database, a message appears warning you that you are about to delete the last record and asks you to confirm your deletion.

❑ To delete a record in edit mode:

1. Display the record you want to mark for deletion.

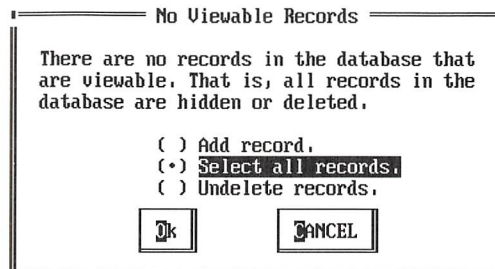
2. Choose Delete Record from the Edit menu.
The record disappears from the screen and can no longer be displayed. The next record in the database appears on the screen.

❑ **To delete a record in browse mode:**

1. Move the cursor to any field in the record you want to mark for deletion.
2. Choose Delete Record from the Edit menu.
The record disappears from the screen and can no longer be displayed. The next record in the database appears on the screen.

Deleting or Hiding the Last Record in the Database

Usually, any time you hide or delete records in the database, you will have at least one viewable record remaining in the database. However, if you choose to delete or hide all records in the database, a message appears asking you to confirm your decision before carrying out the action. If you choose to delete the last viewable record in the database, a dialog box will appear with three options:



- Select one of the following options:

Add Record: adds a new record to the database. The hidden or deleted records remain unchanged.

Select All Records: all the previously hidden records are made viewable in the database in the order you last sorted them. If you hid the last record in the database, the dialog box appears with this option selected.

Undelete Records: all the previously deleted records are made viewable in the database in the order you last sorted them. If you deleted the last record in the database, the dialog box appears with this option selected.

Note: Selecting the Cancel button closes the dialog box and returns you to the PC Tools Desktop application you were using before you hid or deleted the last record.

Undelete Records

If you decide you want to see the records you marked for deletion, or if you make a mistake and mark the wrong record, undelete the records. You cannot bring back just one record; choosing Undelete Records brings back all the records marked for deletion.

- Choose Undelete Records from the Edit menu.
All the deleted records are added to the database in their previously sorted order.

Pack Database

Packing a database removes the deleted records permanently from the database. Since there is currently a 10,000-record limit in a database, keeping records in the database you no longer use may prevent you from having the needed storage space.

1. Delete the records you want to remove from the database.
2. Choose Pack Database from the Edit menu.
A message appears asking you to confirm the command.

All the records you marked for deletion are permanently erased.

Hiding Records and Selecting Hidden Records

There may be some situations when you do not want all the records in the database displayed. For example, you might want to eliminate some records when printing mailing labels. In this kind of situation, you can hide records. Hiding records is another way of marking the record so it will not be displayed.

Hide Current Record

Although the record remains a part of the database, hiding a record prevents the record from being displayed or printed. Hiding a record also prevents it from being deleted.

Note: The database is designed to have at least one viewable record. If you hide the last record in the database, a message appears warning you that you are about to hide the last record and asking you to confirm your decision.

1. Display the record you want to hide.

2. Choose Hide Current Record from the Edit menu.
The current record disappears from the screen, and the next record in the database is displayed.

Select All Records

Selecting the hidden records enables you to display or view previously hidden records.

- Choose Select All Records from the Edit menu.
All previously hidden records are displayed in the current database, although the currently displayed record does not change.

Edit Fields

Use this command if you decide you want to either change the field name, field type, field size, or the number of decimal places or to add or delete fields from a database. For example, if you wanted to change the field name ZIP to ZIP_CODE and change the size of the field to include the extra four digits now frequently used in zip codes, you would use the Edit Fields command.

You can also use the Edit Fields command to create new fields and delete fields in a database. For example, if you wanted to add a COMMENTS field or delete a FAX field, you would also use this command.

Editing a field in a database changes the field name in the database file (.DBF) and the field name in brackets in the active form file (.FOR). In addition, a form file called NEW.FOR will automatically be created in case you want a new default form with the changed field names.

For example, if you used the field name ZIP in your database and changed it to ZIP_CODE, the field names in brackets in the active form file will be adjusted to reflect the change from [ZIP] to [ZIP_CODE] and the formatting of your form will be maintained. You can edit any other form files with Notepads.

To edit, add, or delete fields:

1. Choose Edit Fields from the Edit menu.
The Field Editor dialog box is displayed showing you all of the field attributes: name, size, type, decimal, and field number. You can change any attributes of a field except field number, which indicates a field's position in a record and is fixed.

Field Editor

Field name: Field Name

Field type: (*) Character
() Numeric
() Logical
() Date

Size: 1

Decimal: 0

Field Number: 1

Add Text Save

Delete Prev. Cancel

2. Make any changes you wish to the following field attributes:

Field Name: where you enter the changes to the field name.

Field Type: choose between character, numeric, logical, and date.

Size: where you enter the size of the current field (up to 70 characters for character type and 19 for numeric).

Decimal: where you can change how many decimal places are included to the right of the decimal point in numeric fields.

3. Select the appropriate Field Editor command button:

Add: adds the new field definition to the database.

Next: selects the next field. This option enables you to move forward through the fields.

Save: saves all the changes and closes the Field Editor dialog box.

Delete: deletes the selected field. Use the Next and Previous buttons to move through a database file and select fields to delete.

Previous: selects the previous field. This options enables you to move backward through the fields.

Cancel: cancels whatever field editing you have performed and closes the Field Editor dialog box.

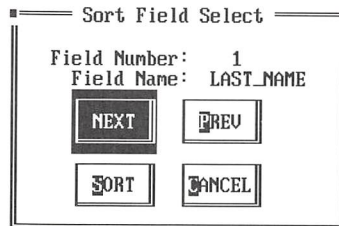
Sorting Databases

One of the most powerful and useful features of a database is its ability to sort through records and reorganize records according to specified fields. For example, if you want to print a mailing list for bulk mailing, you need to organize your list according to zip codes. Sorting determines the order in which the records are displayed and printed, but the physical order of the records remains unchanged.

You can only sort on one field at a time, and the database uses as much of the sort field as possible.

❑ **To sort a database:**

1. Choose Sort Database from the Edit menu.
The Sort Field Select dialog box appears, containing the name of the current sort field.



2. Select one of the following sort command buttons:

Next: selects the next field name to perform the sort. The field numbers and field names change as you select this button.

Prev: selects the previous field name to perform the sort. The field numbers and field names change as you select this button.

Sort: sorts the database using the selected field.

Cancel: cancels the sort and closes the dialog box.

3. Select Sort to sort the database.
A message box appears telling you to wait while the database is sorted.

Once the database is sorted, the current record is displayed in the newly sorted order.

Selecting Records

PC Tools Desktop enables you to select which records you want to display and print based upon specified criteria. This can be very useful if you only want to work with some of the records in your database, for example, if you want to send letters to your New York customers only. Selecting records is different from searching the database. The Select Records command starts the comparison at the beginning of a field and, if a match isn't found, goes on to the next

field. The Search command, on the other hand, searches the entire field for a match.

You may specify up to eight fields and selection criteria for each field in a record. When all fields match the criteria in a record, that record is selected and all other records are hidden. For example, in addition to entering NY as the criteria for the state field, you can enter New York as the criteria for the city field, and only records from New York City will be displayed or printed. Entering one zip code as a criteria for ZIP_CODE fields will select those records with the common zip code, which is useful for bulk mailings.

PC Tools Desktop accepts a wildcard character as a selection criteria that will match any character that appears in the specified field. For example, the zip code 97?06 would display 97006, 97106, 97206, and so on.

You can also specify ranges. For example, below are examples of ranges for zip codes:

70000..77777	Matches zip codes from 70000 through 77777.
--------------	---

70..	Matches any zip code whose first two digits are greater than or equal to 70.
------	--

..37	Matches zip codes whose first two digits are less than or equal to 37.
------	--

You can also specify ranges for fields using letters, like names or cities.

A..F	Matches fields starting with A and going through F.
------	---

AA..ASH	Matches fields starting from AA and going through ASH.
---------	--

When specifying ranges, the case (upper or lower) of letters doesn't matter.

❑ To select records:

Note: The database is designed to have at least one viewable record. If your selection criteria is such that all the records in the database are either deleted or hidden, a message will appear warning you that the last record in the database is about to be hidden and asking you to confirm your decision.

1. Choose Select Records from the Edit menu.
The Select Records dialog box appears.

Field Name	Field Criteria
1:LAST NAME	M
2:ZIP	98
3:STATE	NY
4:	
5:	
6:	
7:	
8:	

SELECT CANCEL

2. Select the following selection criteria options in the following order:

Field Name: type up to eight field name(s) for the database to search. For example, you can type STATE if you want to work with records based on criteria in state fields.

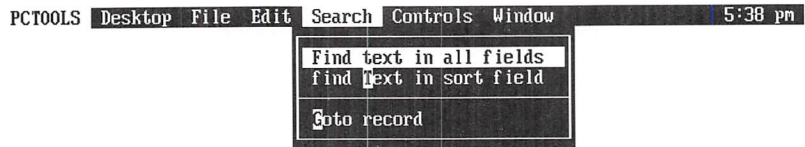
Field Criteria: type the criteria to be used to match the specified field. For example, you can type "New" for the criteria to be used to search STATE fields and the database will be searched for all states containing the character string New.

3. Select the Select command button to search the database for all fields that match the selection criteria. All records not matching the criteria are hidden.

Searching in the Database

The Search pull-down menu provides a list of commands for searching for specified text or records in the database. You can search through your database for a particular string of characters. For

example, you might remember a street name but not the person. Finding the record is easy using search functions.



Both Find commands search through your database records to find specified text. Beginning at the start of the database, the database is searched, and when the search is completed, the record containing the search character string is displayed with the cursor positioned at the beginning of its field. The search is case insensitive.

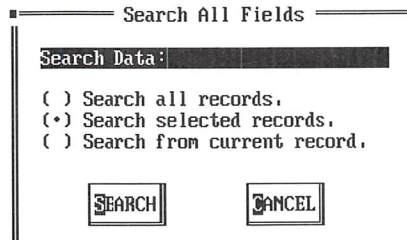
Note: If you search using the shortcut key, F7, the Find Text in Sort Field command is used.

Find Text in All Fields

The Find Text in All Fields command searches all fields for specified text in any position of a field. For example, with the Find Text in All Fields command, you can find any record that contains a "4" in any position in any of its fields. The database searches the file for the specified text and stops, with the cursor positioned at the beginning of the field in which the character string is located.

❑ To find text in all fields:

1. Choose Find Text in All Fields from the Search menu.
The Search All Fields dialog box appears.



2. Type the character string you want to find in the Search Data text box.

3. Select any one of the following Search options:

Search All Records: searches for the specified character string in all records, displayed, hidden, and deleted.

Search Selected Records: searches for the specified character string in previously selected records.

Search From Current Record: searches for the specified character string, starting at and including the current record and searches to the end of the database.

4. Select Search to begin the database search.
The file is searched for the specified text and stops, with the cursor positioned at the beginning of the field in which the character string is located.

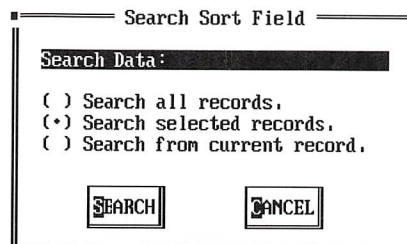
The dialog box is displayed until you close it, the last occurrence of the search text is found, or you select Cancel.

Find Text in the Sort Field

The Find Text in Sort Field command allows you a fast way to find a record. For example, finding anyone's phone number is easy using the Find Text in Sort Field command when the database is sorted by last name. The Find Text in Sort Field command sorts using the last sort field you used. To change the sort field, use the Sort Database command.

☐ To find text in sort fields:

1. Choose Find Text in Sort Field from the Search menu.
The Search Sort Field dialog box appears.



2. Type the character string you want to find in the Search Data text box.

3. Select any one of the following Search options:

Search All Records: searches for the specified character string in the sort field of all records, displayed, hidden, and deleted.

Search Selected Records: searches for the specified character string in the sort field of previously selected records.

Search From Current Record: searches for the specified character string in the sort field, starting at and including the current record and searches to the end of the database.

4. Select Search to begin the database search.
The file is searched for the specified text and stops, with the cursor positioned at the beginning of the field in which the character string is located.

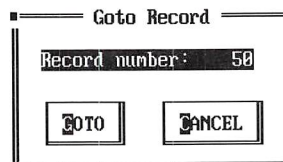
The dialog box is displayed until you close it, the last occurrence of the search text is found, or you select Cancel.

Goto Record

The record display in the top of the database window allows you to see which record you are currently displaying. To move quickly through the database or to move to a specified record, use the Goto Record command.

❑ To go to a record:

1. Choose Goto Record from the Search menu.
The Goto Record dialog box appears.



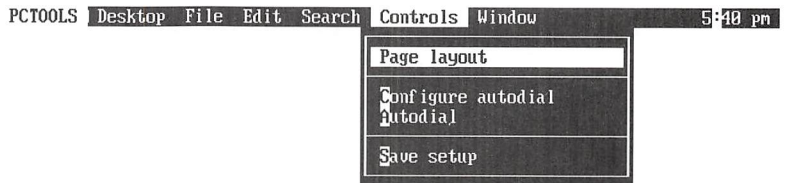
2. Type the number of the record you want to go to in the Record Number text box.
The text box shows the number of the current record when the dialog box appears.
3. Select Goto to go to the specified record.

Selecting Cancel cancels the Goto Record command and returns you to the currently displayed record. Pressing the ESC key or clicking on the close box performs the same function as Cancel.

Setting Document Controls

When you create a new form file in Notepads, you can set such document controls as automatic indenting, Wordwrap, and tab stops. Once these settings are made in Notepads, the Databases application displays the settings the way you selected them.

In Databases, you can set phone settings for automatic dialing and set up margins for printing from the Controls menu.

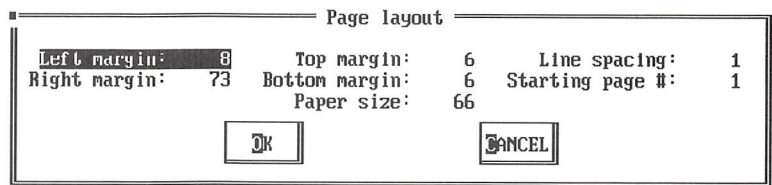


Page Layout

Before you print all or selected records in your database file, you can change the margins for printing letters or mailing labels. Even though you make these additions to your file, you won't be able to see them until you print the file.

❑ To set page layout options:

1. Choose Page Layout from the Controls menu.
The Page Layout dialog box appears.



2. Select any of the following Page Layout options:

Margins: sets the amount of blank space between the edges of the paper and your text. The current default settings are the following: left margin 8 spaces, right margin 73 spaces

(from left edge of page), top margin 6 lines, and bottom margin 6 lines. These settings produce a one-inch margin on all sides. If you want to change the margins, type a new number in the appropriate text box. Mailing labels require the following setting: left margin 8 space, right margin 73 spaces, top margin 0 lines, and bottom margin 0 lines.

Many printers have left margin settings, so you may need to print a sample document and make any necessary margin adjustments.

Note: *If you are printing on a laser printer, set the top and bottom margins at 2 and the paper size at 60 to ensure proper printing alignment. This is required because laser printers are set up to print within a specified area on a page.*

Paper Size: allows you to specify the paper size you are using to print your file. The default setting is 66 lines, which corresponds to an 8.5" x 11" sheet of paper. If you are using legal size paper (8.5" x 14"), you need to change the Paper Size setting to 84 lines. One-inch mailing labels require a Paper Size setting of 6. These values assume your printer is set for 6 lines per inch. If your printer is set for another value, you need to change the settings.

Line Spacing: specifies whether you want to single or double space your text.

Starting Page #: specifies the first page of your document. Subsequent pages will be numbered from this starting point.

Note: *When printing mailing labels, calculate the Paper Size value like this: add the number of lines in the address (3), the top margin value (1), the bottom margin value (1), and the space between each label on the page (1). This calculation assumes you are using one-inch high labels on a continuous feed sheet.*

3. Select OK to set the Page Layout controls.

Using the Autodialer

You can automatically dial a phone number found in any of your records if you have a Hayes-compatible modem attached. Also the *Appointment Scheduler* chapter shows you how you can set an alarm to run a macro that will automatically bring up a record and dial a number.

Note: If you use the Autodialer feature to dial a phone number from the database, make sure you structure the database with the phone number field as your first field containing numbers so that the Autodialer can match the dialing criteria. If, for example, you were to place a zip code field before the phone number field in the database, the Autodialer would find and try to dial the zip code number.

When dialing a number in a record, the Autodialer scans all fields in the database (not just the viewable fields) and recognizes three or more consecutive numbers as a valid telephone number. The Autodialer accepts spaces, dashes, parentheses, hyphens, and “x” (for extensions) and will recognize the following characters when placed in a phone number:

P: used if you have a rotary dial phone.

T: used if you have a touch-tone phone.

, (comma): pauses two seconds before continuing to dial. If you want a longer pause, you can use more commas. This is useful if you have to dial 9, for example, to get a line outside a main switchboard.

*** or #:** accepted characters for phone numbers.

W: waits for a dial tone before proceeding. This is useful for dialing long-distance access services that require you to wait for a tone before continuing to dial. (This must be entered uppercase.)

@: waits for dial tone (no answer).

K: delays dialing until you press another key. Some online services answer the phone and return a tape-recorded request for more information before processing your transactions (such as automatic banking transactions). In such instances, you can use the K in your phone number. (This must be entered uppercase.)

When you select a phone number with a K in it, the Autodial Pause dialog box appears with the following options:

Resume Dialing: dials the remaining numbers in the phone string.

Cancel: cancels the dialing procedure and returns you to the current record.

Configure Autodial

Before you can use the automatic dialing feature, you need to set transmission parameters to connect your computer system and modem. Once these parameters have been set, you don't need to change them unless you change modems. You also need to be aware of what kind of phone system you are using, for example, whether you are using a pulse or tone dialing procedure and what kinds of delays and pauses you are likely to see.

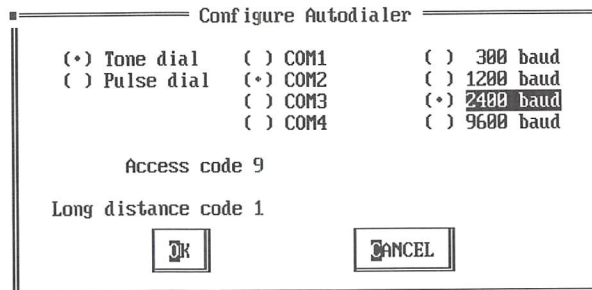
You can also enter an access code and a long-distance code that will automatically run when you dial a phone number.

With these features, you don't have to manually enter an access code (such as 9) or a long-distance code (such as 1). When these numbers have been saved in the Configure Autodialer dialog box, PC Tools Desktop will automatically execute them each time you use your modem. If your access code or long-distance code changes, just change them in the Configure Autodialer dialog box.

Your modem should be configured so that Data Carrier Detect (DCD or CD) reflects the actual state of the carrier detect signal. Some modem manufacturers refer to this state as "True carrier detect."

❑ To change Autodialer settings:

1. Choose Configure Autodial from the Controls menu. The Configure Autodialer dialog box appears for you to either set or verify transmission settings or to enter or edit access and long-distance codes.



2. To change the settings, select any of the following configuration options:

Tone Dial: sets the dialing procedure for touch-tone phones. Using the P character in a phone number overrides this option.

Pulse Dial: sets the dialing procedure for rotary dial phones. Using the T character in a phone number over rides this option.

COM 1, 2, 3, 4: shows which serial port your modem is connected to. Since COM3 and COM4 are not standard, they must be defined on the command line with a parameter: /C3 or /C4 = IRQ,Base Port Address (for example, /C3=4,3E8). Refer to your modem manual for the IRQ and Base Port Address. This parameter is not necessary on PS/2s.

300 to 9600 Baud: shows the speed at which the computer transmission takes place. Set the baud speed according to your modem's specifications.

Access Code: shows the access code you use to get an outside line. Databases recognizes and dials the access code you have entered in the Access Code edit box. For example, if you work in an office where you need to dial 9 to get an outside line, you would enter 9 here. Databases will automatically dial that number for you when you use the Autodialer. If you are calling from home, you can probably leave this blank so that the Autodialer does not attempt to dial an access code.

You can change this number at any time by choosing Configure Autodial from the Controls menu and entering a new number.

Long-Distance Code: shows the long-distance code you use for a long-distance phone call. Databases recognizes and dials the long-distance code after dialing any access code. For example, if you enter 1 as your long-distance code, Databases will automatically dial that number for you when you use the Autodialer.

If you are dialing a number within your area code, you will receive a dialog box that asks you if the number is long distance. If it is a local call, choose Local; if it is long distance, choose Distant.

You can change this number at any time by choosing Configure Autodial from the Controls menu and entering a new number. If you leave this blank, the Autodialer will not attempt to dial a long-distance code.

Note: The access code and long-distance code you have entered will be global for all numbers you dial with the Autodialer. The codes are saved in a DESKTOP.CFG file.

3. Select OK to set the new transmission settings.
The dialog box closes and the current record appears for you to dial the phone number.

Selecting Cancel closes the dialog box without changing any settings and returns you to the current record. The dialog box opens with this option selected, allowing you to verify the transmission parameters.

Autodial

After you have selected all the appropriate settings for your Hayes-compatible modem and have displayed the record containing the phone number you want to call, make sure the modem is connected and turned on.

1. Choose Autodial from the Controls menu.
The database scans the current record's fields to find a phone number. When the number is found, the modem dials the number, and a message is displayed telling you how to proceed.
2. Pick up the telephone, and press the ESC or ENTER key or click the Disconnect command button to disconnect the modem so you can talk to your party.

Important: You must wait until the phone is ringing to disconnect the modem. You cannot cancel the Autodial command before the modem has dialed the phone.

Save Setup

With Save Setup you can save all the selections you've made in the Controls and Window menus. For example, if you usually use the same settings for margins, headers/footers, Wordwrap, overtype, and windows colors, you can choose the Save Setup command so that every time you open a new Databases window, you don't need to make any changes. The options for printing and formatting on the Controls menu are globally saved for *all* three PC Tools Desktop applications that use printing (Notepads, Outlines, and Databases). Unless Save Setup is used, the commands you choose on the Controls and Window menus affect only the current file.

7. Appointment Scheduler

The Appointment Scheduler contains a calendar, scheduler, and a to-do list that allows you to create, edit, view, and print your day or month's appointments and projects.

Since the Appointment Scheduler stays in memory once you have loaded PC Tools Desktop as a memory-resident program, you can quickly add, delete, or change appointments while you are in the middle of any application. Let's say you are busy writing your monthly sales report when your regional manager calls to schedule a meeting next month. You can quickly display the Appointment Scheduler for the following month, check to see if you are free, and schedule the appointment without leaving your report application.

In addition, macros can be included when you set an alarm in the Appointment Scheduler. Attaching a macro to an alarm enables you to perform such tasks as pop up a notepad with meeting notes, pull up a database record and dial a phone number, or run a program at a set time when you aren't there. You can also attach a standard Notepads file to an appointment for longer notes. The Appointment Scheduler will also accept ASCII graphics characters.

Schedule (.TM) Files

The schedules created by the Appointment Scheduler are kept in files with a default extension of .TM. Any files in the current directory with the .TM extension are listed in the File Load dialog box when you start the Appointment Scheduler.

You can use the File Load dialog box to create a new schedule or load an existing schedule. If several people use the same PC, for example, each person could have his or her own schedule file. If the departmental secretary is responsible for keeping everyone's schedule, each person's schedule can be kept in individual files.

Viewing the Day's Schedule at System Startup

By installing PC Tools Desktop with the /RA parameter instead of /R, PC Tools Desktop will come up as if you had hotkeyed into it, and the Appointment Scheduler will display today's schedule and To-Do List. At this point PC Tools Desktop is fully functional. If you do not have an active Appointment Schedule file with appointments set, PC Tools Desktop will come up as if you had installed it with /R.

7. Appointment Scheduler

If you have PC Tools Desktop installed in your AUTOEXEC.BAT file using this parameter, it should be the last entry in the file because nothing that follows it will execute until PC Tools Desktop is exited.

Starting the Appointment Scheduler

This section is intended to get you acquainted with the Appointment Scheduler. It shows you the important features of the scheduler and how to start using it.

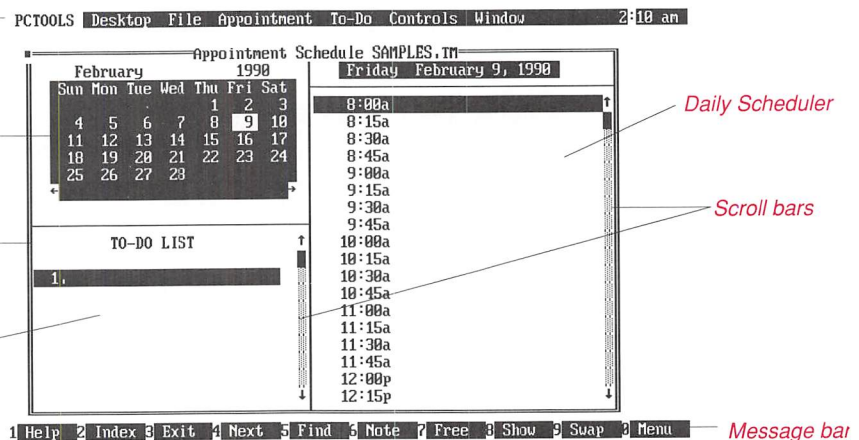
1. Choose Appointment Scheduler from the PC Tools Desktop menu.
The File Load dialog box appears.
2. Create a new file with a .TM extension. This starts the Appointment Scheduler on today's date with a blank schedule.

*Appointment Scheduler
Horizontal Menu bar*

Monthly Calendar

Window border

Things To Do list



The Appointment Scheduler screen contains the following parts:

Appointment Scheduler Horizontal Menu Bar: This contains the names of the pull-down menus and the time display, which is in the right corner.

Monthly Calendar: This portion of the main window is a month-by-month calendar with the selected date highlighted. This date sets the day shown on the Daily Scheduler. The calendar is perpetual, so there is no end date.

To select a date with the keyboard, use the UP, DOWN, RIGHT, OR LEFT arrow keys. If you move beyond the first or last day of the

month, the calendar scrolls to the next month. Pressing the HOME key changes the day to today's date.

You can switch months by using the PGUP/PGDN keys or clicking on the arrows at the corners of the calendar box. If you want to return to the current date, press HOME.

You can also switch years by pressing CTRL plus the PGUP/PGDN keys.

Window Border: This indicates the active window with a double border. The top border can be used by a mouse to move the window.

To-Do List: This portion of the main window is a reminder of important things to do, listed in order of priority. You can have up to 80 items on this list with attached notes, although only eight can be displayed on the screen at once. The To-Do List is independent of the Monthly Calendar and the Daily Scheduler.

To select an item with the keyboard, use the UP/DOWN arrow keys. Page through the list by using the PGUP/PGDN keys or using the scroll bar. The HOME key selects the first item, and the END key selects the last item.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using the Appointment Scheduler when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to attach a note to an appointment, just press F6 or click anyplace on the Note command in the Message Bar with the mouse; this brings up a blank Notepads file to write a note.

Scroll Bars: These are used with the mouse to move through the display.

Daily Scheduler: This portion of the main window is a daily time planner with the selected time highlighted.

To select a time with the keyboard, use the UP/DOWN arrow keys. You can page the display by using the PGUP/PGDN keys or using the scroll bar. The HOME key selects the earliest appointment time, and the END key selects the last appointment time. Pressing ENTER

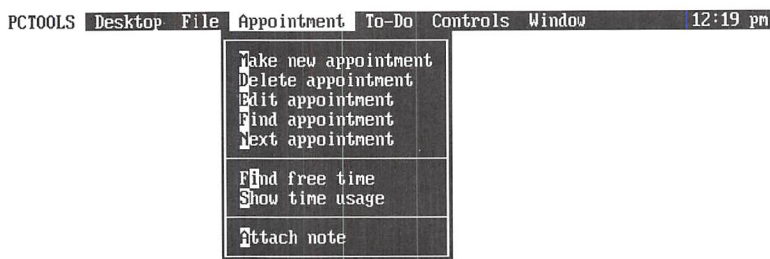
7. Appointment Scheduler

enables you to make an appointment for the highlighted time. If you have existing appointments, pressing **ENTER** enables you to edit or delete them. Also, if you have an attached note (a full Notepads file), pressing **F6** on the existing appointment pops up the attached note.

You can move between the Monthly Calendar, the Daily Scheduler, and the To-Do regions by pressing the **TAB** key or clicking the mouse in the subwindow. The active region shows a highlighted name at the top.

Making Appointments

The Appointment menu controls the way that Appointment Scheduler makes and deletes appointments.



❑ To make a new appointment:

The Make New Appointment command creates a new appointment. This command also enables you to set an alarm to run a program or a macro, or display an attached Notepads file, when PC Tools Desktop is running resident. (See the examples in the sections “Running a Program at an Alarm,” “Loading a Notepads File at an Alarm,” and “Using Macros with the Appointment Scheduler,” later in this chapter.) You can also specify whether to attach a note, which pops up a Notepads file, to an appointment. There are two ways to set an appointment.

Shortcut

1. Select the Monthly Calendar, then select a date when you'd like to make an appointment.
2. Select the the Daily Scheduler, then move the cursor to the time you want to make the appointment. Remember, you can move between the regions of the Appointment Scheduler by pressing the **TAB** key.

3. Press ENTER or click with the mouse button. This will bring up the Make Appointment dialog box (shown in the following illustration) with the date and time filled in.

You can type in a reminder note before pressing ENTER. Type up to 24 characters to remind you what you've set an appointment for. When you do this, the note appears in the dialog box. The reminder note is then displayed in your daily schedule, next to the time of the appointment, until you change or delete it. (ASCII graphics characters are also allowed; just press the ALT key along with the decimal equivalent to get the ASCII character. For example, pressing ALT-7 inserts a bullet, •.)

A warning message will be displayed if you try to make an appointment on a date prior to the current date or if you try to make a recurring appointment that has an end date prior to the current date. You will, however, be able to make the appointment.

The other options found in the Make Appointment dialog box are explained on the next two pages.

Make appointment

Start date: 05-01-89
 End date: none
 Time: 8:00a
 Note: Board Presentation
 Type: B

When	Duration	Alarm
<input checked="" type="checkbox"/> Today only	Days: 0	<input type="checkbox"/> No alarm
<input type="checkbox"/> Every day	Hours: 1	<input checked="" type="checkbox"/> Simple alarm
<input type="checkbox"/> Work days	Minutes: 0	<input type="checkbox"/> 5 min advance
<input type="checkbox"/> Weekly		<input type="checkbox"/> 10 min advance
<input type="checkbox"/> Monthly - fixed day		
<input type="checkbox"/> Monthly - fixed weekday		<input checked="" type="checkbox"/> Attach note

MAKE

CANCEL

Standard Method

1. Select the Monthly Calendar, then select a date when you'd like to make an appointment.

2. Select the the Daily Scheduler, then move the cursor to the time you want to make the appointment. Remember, you can move between the regions of the Appointment Scheduler by pressing the TAB key.
3. Choose Make New Appointment from the Appointment menu. This will bring up the Make Appointment dialog box for you to enter any notes (or macros).

A warning message will be displayed if you try to make an appointment on a date prior to the current date or if you try to make a recurring appointment that has an end date prior to the current date. You will, however, be able to make the appointment.

4. Enter the starting and ending dates in the Date text boxes, the time in the Time text box, and a reminder of the appointment you want to make in the Note text box. This reminder appears in the Daily Scheduler, next to the time of the appointment. The end date is necessary only if you are setting a recurring appointment, for example, everyday or on all weekdays. If you try to set an appointment during another scheduled appointment, a message box will appear informing you of the scheduling conflict.

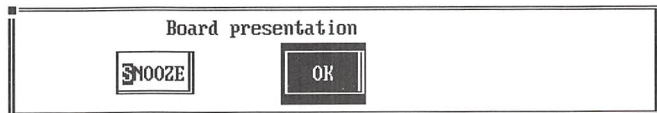
You can also specify a one-character field, "Type," to classify appointments. For example, you might want to classify all of your meetings with the production department with a "P" and all of your meetings with the accounting department with an "A", and so on. Then later, you can search on the type field to find all of your production meetings.

5. Select when you'd like the appointment to occur in the When column. You can set up a one-time appointment (Today only) or appointments that repeat on a daily, weekly, or monthly basis. If you want an appointment to repeat at the same time every business day, such as lunch, select Work Days. (See "Personalizing the Appointment Scheduler" for the procedure to define work days.) If you want an appointment to repeat at the same day every month, select Monthly--Fixed Day or the same day of the week every month, select Monthly--Fixed Weekday.
6. Specify the length of the appointment in the Duration column. If the selected time overlaps with an existing appointment, you'll see a warning after you select Make.

Type the number or days, hours or minutes you want. When the appointment appears on the screen, the duration is indicated by a vertical bar to the left of the appointment. Individual appointments can be made at any time and will be displayed at the time you enter, replacing the closest 15-minute or 30-minute time slot.

7. Select the type of alarm you want in the Alarm column. You can ask for an alarm to go off at the time of the appointment, five or ten minutes early, or not at all.

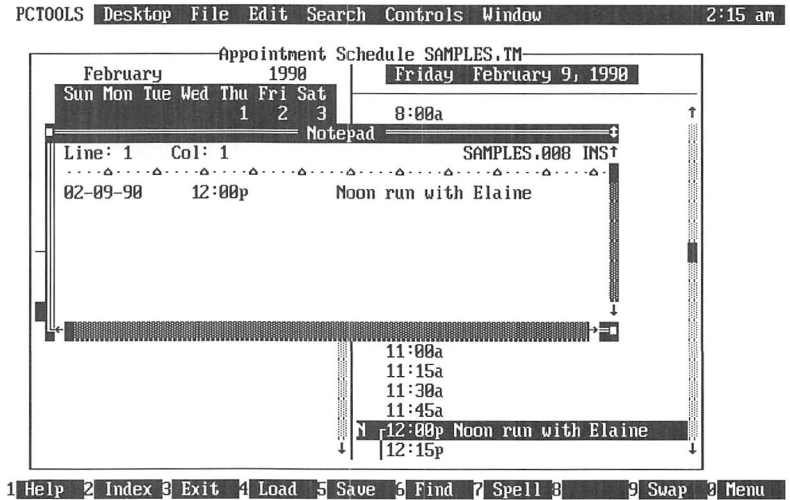
If you choose to set an alarm, PC Tools Desktop will interrupt whatever program is running, beep the speaker, and display a message box with the name of the appointment from the active .TM file when the alarm goes off. The message box remains on the screen until you select OK. Selecting Snooze will clear the alarm message from the screen, and cause the alarm to sound and display the message box again in five minutes.



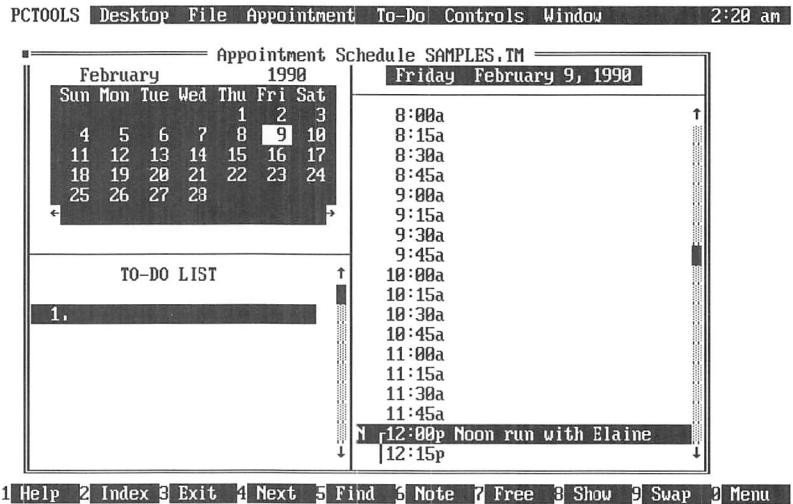
Note: An alarm may not be activated if the Appointment Settings time is not set to the same time as your DOS clock. To avoid this problem, just make sure that the DOS clock time is accurate.

8. The Attach Note option enables you to attach a standard Notepads file to any appointment.
9. When you're satisfied with your choices, select Make. If you had selected Attach Note, the Notepads window (below) is automatically displayed on top of the Appointment Scheduler.

7. Appointment Scheduler



The top line of the Notepads file contains the appointment reminder note and the date and time; the rest of the file is blank for you to add whatever text you want. All Notepads editing functions are available. When you are done writing your note, press **ESC** or click on the close box to return to the Appointment Scheduler.



Your new appointment now appears in the Daily Scheduler. If you set an alarm, a small musical note symbol appears to the left of the duration bar for the appointment. A recurring appointment with an

alarm is indicated by a double note. A non-recurring appointment with an alarm is indicated with a single note symbol. If you have an attached note, an "N" appears to the left of the musical note.

Note: If appointments overlap, the overlapping times are highlighted on the duration bar.

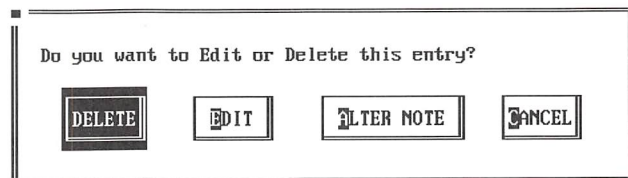
Deleting Appointments

The Delete Appointment command removes the currently selected appointment. You can remove a one-time appointment or a recurring appointment.

❑ To delete an appointment:

Shortcut

1. Select an appointment on the Daily Scheduler by clicking on the appointment or moving the highlight bar to the appointment and pressing ENTER. A dialog box appears asking if you want to edit or delete the appointment or alter the note attached to the appointment.



2. Select Delete.

Standard Method

1. Highlight an appointment on the Daily Scheduler.
2. Choose Delete Appointment from the Appointment menu.
3. Select OK from the dialog box asking for confirmation. This removes the appointment.

If you try to delete a recurring appointment, you'll see an additional dialog box asking if you want to delete all of the recurring appointments, just today's, or cancel the deletion.



Editing Appointments

The Edit Appointment command enables you to change the currently selected appointment. You can edit a one-time appointment or a recurring appointment.

❏ To edit an appointment:

Shortcut

1. Select an appointment on the Daily Scheduler by clicking on the appointment or moving the highlight bar to the appointment and pressing ENTER.
A dialog box appears asking if you want to edit or delete the appointment or alter the note attached to the appointment.
2. Select Edit.
This pops up the Make Appointment dialog box with your currently selected appointment. You can now make any changes you want to the appointment setting.

***Note:** If you select Alter Note in the Edit/Delete Appointment dialog box, the attached Notepads file pops up for you to edit.*

Standard Method

1. Highlight an appointment on the Daily Scheduler by scrolling with the arrow keys.
2. Choose Edit Appointment from the Appointment menu.
This pops up the Make Appointment dialog box with your currently selected appointment. You can now make any changes you want to the appointment setting.

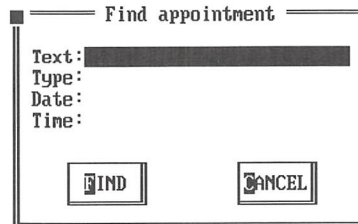
Finding Appointments

The Find Appointment command enables you to search the Appointment Scheduler by Text, Type, Date, and/or Time for a specified appointment. For example, if you are looking for a “project meeting” appointment with the production department, you would enter “project” in the Text field and “P” in the Type field.

❑ **To find an appointment:**

1. Choose Find Appointment from the Appointment menu, click on the Find command in the Message Bar with the mouse, or press F5.

The Find Appointment dialog box appears asking you to enter the text, type, date, and/or time you want to search for. You can enter text in uppercase or lowercase; for example, Project, PROJECT, and project are all recognized the same.



2. Select Find to start the search.
Any appointments after the current date and time containing the word "project" in the note field and having the type of "P" will be found.

Pressing ENTER (or selecting Find) without typing a character string to search for will find all appointments after the current date and time.

Next Appointment

The Next Appointment command enables you to quickly display the next appointment you have scheduled for that day. No matter what you are currently doing in the Appointment Scheduler, you can immediately find out what your next appointment is. If you have no more appointments scheduled for the day, Next Appointment positions the cursor on the current time. Pressing F4 also quickly displays the next appointment.

Finding Free Time

The Find Free Time command moves the cursor in the Daily Scheduler to the first free block of time of the duration you request.

❑ **To find free time:**

1. Choose Find Free Time from the Appointment menu, click on the Free command in the Message Bar with the mouse, or press F7. This pops up the Find Free Time dialog box.

7. Appointment Scheduler

Start Time and **Stop Time:** allow you to enter the times PC Tools Desktop is to start and stop looking for free time.

Where: lets you select whether the Appointment Scheduler should limit the search to days bounded by the Appointment Settings (Work Day) or any day. The search starts at the currently selected time.

Duration: lets you enter the length of time to find in days, hours or minutes.

Find free time	
Start time	Stop time
0:00a	5:00p
Where	
() Any day	Duration
(•) Work day	Days: 0
	Hours: 1
	Minutes: 0
FIND	CANCEL

2. Select Find. The Appointment Scheduler moves the cursor in the Daily Schedule to the first free block of time long enough. It will look ahead, up to 365 days, to find the time slot you need.

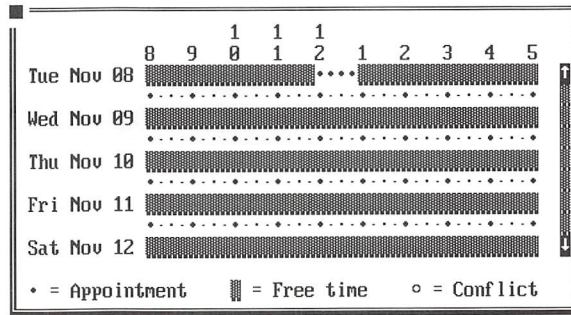
Showing Time Usage

The Show Time Usage command graphically shows you five days at a glance.

❑ To show time usage:

1. Choose Show Time Usage from the Appointment menu, click on the Show command in the Message Bar with the mouse, or press F8.

This pops up a dialog box that shows you your schedule for five days at a glance. The first day is the selected day on the Monthly Calendar. When you scroll the Time Usage box with the arrow keys or the mouse, it also changes the selected date on the calendar. Pressing the HOME key returns you to today's date, while the PGUP and PGDN keys move you five days ahead or back at a time.



The solid dots represent appointments; shaded areas are free times; and transparent dots are conflicts.

2. Press ESC or click on the close box. This returns you to the main window of the Appointment Scheduler.

Attaching a Note

You can attach a note to any appointment. Attached notes are standard Notepads files that give you more room to enter text that you would like to keep associated with any appointment. After an attached note is created, you can view or edit it any time from the Appointment Schedule.

❑ To attach a note when creating an appointment:

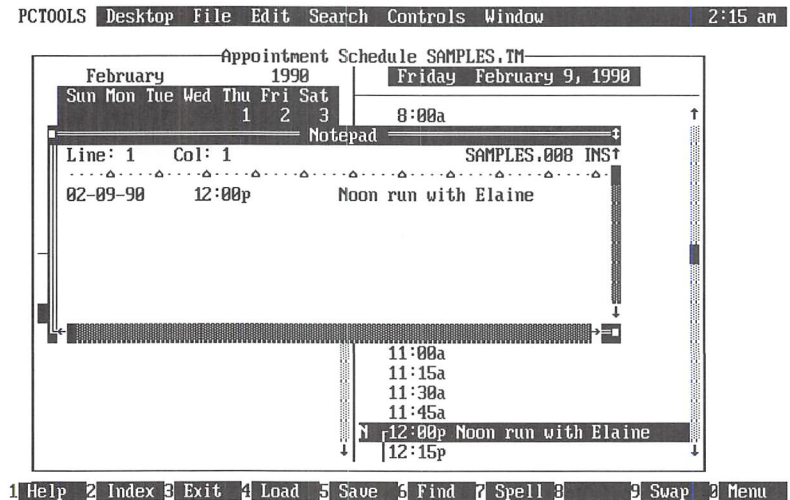
1. Select the Attach Note option in the Make/Edit Appointment dialog box.
2. Select Make to make the appointment.
The dialog box goes away.

❑ To attach a note to an existing appointment:

1. Select the appointment you want to attach a note to by moving the highlight bar over it.
2. Choose Attach Note from the Appointment menu.

or

Press the F6 key.



A Notepad's file is displayed on top of the Appointment Scheduler. The top line of the Notepad's file will contain the appointment note, date, and time; the rest of the file will be blank for you to add whatever text you want. All Notepad's editing functions are available. When you are done, press ESC or click on the close box to return to the Appointment Scheduler.

The note will have the same file name as the current appointment scheduler file with an extension that is the internal ID number of the selected appointment and will be created in the same directory as your Appointment Scheduler file. An "N" will appear to the left of the appointment on the scheduler to indicate a note is attached.

❑ To edit an attached note:

1. Select an appointment on the Daily Scheduler by clicking on the appointment or moving the highlight bar to the appointment and pressing ENTER.

or

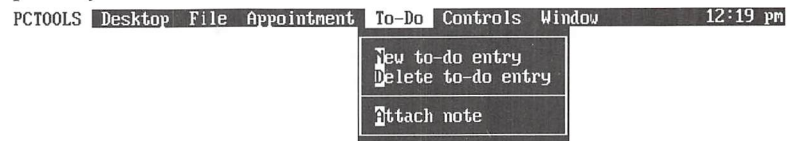
Press the F6 key.

A dialog box appears asking if you want to edit or delete the appointment or alter the note attached to the appointment.

2. Select Alter Note.
This pops up the attached Notepad's file. You can now make any changes you want to the attached note.

Appointment Scheduler To-Do List

The To-Do menu controls the entries on the To-Do List. This is a list of up to 80 items that are displayed independently of the scheduler and the calendar. To-do entries are displayed only for a specified period of time, beginning on the date they are made and ending on the end date you enter. Also, each entry in the list can have a note attached to it and be assigned a priority. The list is displayed in priority order.



□ To make a new To-Do entry:

Shortcut

- Position the cursor on the blank to-do item and start typing. Press ENTER when you are done. This pops up the New To-Do Entry dialog box with the note filled in. The other options in the New To-Do Entry dialog box are explained below.

Standard Method

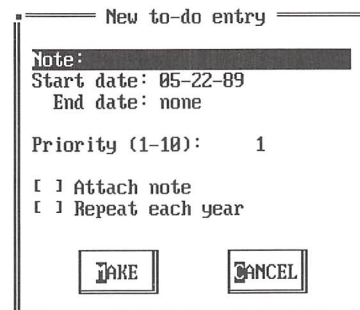
1. Position the cursor on the blank to-do entry and press ENTER.

or

Click on the blank to-do entry.

or

Choose New To-Do Entry from the To-Do menu. This pops up the New To-Do Entry dialog box.

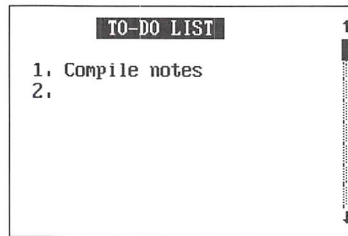


2. Type a note in the Note text box.

3. Specify the end date. To-do entries are displayed only for a specified period of time, beginning on the date they are made and ending on the end date you enter. If no end date is specified, the entry will remain on the list until you delete it. Also specify the priority. All to-do entries are sorted and displayed by priority number.

Check the Attach Note check box if you want to attach a standard Notepads file for lengthy notes. The Repeat Each Year option displays the reminder note on the same day each year for the specified date range. This is useful for remembering birthdays, anniversaries, etc.

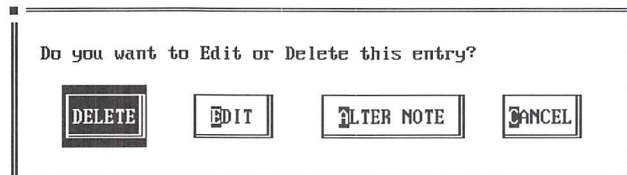
4. Select Make. The entry is added to the To-Do List according to the priority you set.



☐ To delete a To-Do entry:

Shortcut

- Select the note you want to delete in the To-Do List. This pops up the Delete/Edit dialog box for you to delete or edit the entry or alter the note attached to the selected entry.



Standard Method

1. Select the note you want to delete in the To-Do List.

- Choose Delete To-Do Entry from the To-Do menu.
This deletes the selected entry from the To-Do List.

Attaching Notes to To-Do Entries

You can attach a note to any To-Do List entry. Attached notes are standard Notepads files. They give you more room to enter text that you would like to keep associated with any to-do entry. After an attached note is created, you can view or edit it anytime from the Appointment Scheduler. It works as follows:

❑ To attach a note when creating a To-Do List entry:

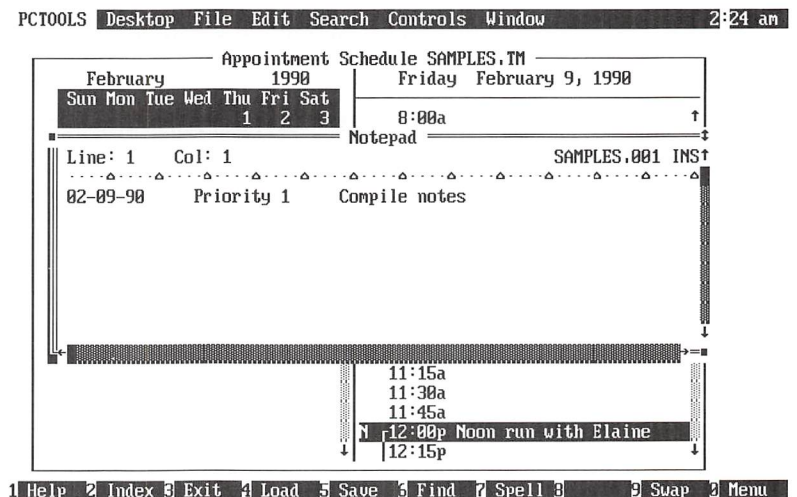
- Select the Attach Note option in the New To-Do Entry dialog box.
- Select Make to add the entry to the list.
The dialog box goes away and the attached note appears.

❑ To attach a note to an existing To-Do List entry:

- Select the To-Do List entry you want to attach a note to by moving the highlight bar over it.
- Choose Attach Note from To-Do menu.

or

Press the F6 key. A Notepads file is displayed on top of the Appointment Scheduler.



7. Appointment Scheduler

The top line of the Notepads file contains the to-do note, the date and time, and the priority number; the rest of the file will be blank for you to add whatever text you want. All Notepads editing functions are available. When you are done, press **ESC** to return to the Appointment Scheduler.

The note will have the same file name as the current appointment scheduler file with an extension that is the internal ID number of the selected to-do entry and will be created in the same directory as your Appointment Scheduler file. An “N” will appear to the left of the entry on the to-do list to indicate a note is attached.

❑ To edit an attached note:

1. Select a to-do entry by clicking on the entry or moving the highlight bar to the entry and pressing **ENTER**.

or

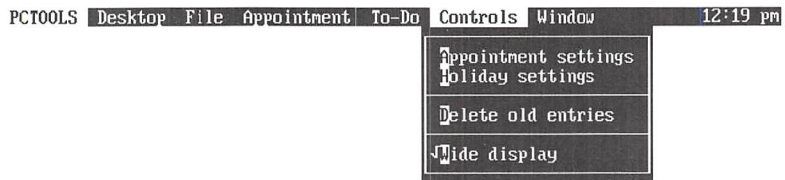
Press the **F6** key.

A dialog box appears asking if you want to edit, or delete the entry or alter the note attached to the entry.

2. Select Alter Note.
This pops up the attached Notepads file. You can now make any changes you want to the attached note.

Personalizing the Appointment Scheduler

The Controls menu offers you commands for personalizing your appointment schedule. You can change appointment settings, designate the holidays you observe, delete old entries, or select to view all or part of the Appointment Scheduler screen.



Changing Appointment Settings

You can set up the start and stop times for your work day. When you use the Appointment Settings command in the Controls menu, it changes the range of hours shown on the Daily Scheduler and the Show Time Usage display, and changes the way that Find Free Time works.

❑ To change appointment settings:

1. Choose Appointment Settings from the Controls menu. The Appointment Settings dialog box appears.

Work days	Start time	Stop time	Increment
<input type="radio"/> Sunday	8:00a	5:00p	<input checked="" type="radio"/> 15 minutes
<input checked="" type="radio"/> Monday			<input type="radio"/> 30 minutes
<input checked="" type="radio"/> Tuesday	Date format	Time format	
<input checked="" type="radio"/> Wednesday			
<input checked="" type="radio"/> Thursday	<input checked="" type="radio"/> MM-DD-YY	<input checked="" type="radio"/> am/pm	
<input checked="" type="radio"/> Friday	<input type="radio"/> DD-MM-YY	<input type="radio"/> 24 hour	
<input type="radio"/> Saturday	<input type="radio"/> YY-MM-DD		

OK CANCEL

2. The settings in this box control the allowable times and the time increments of appointments. You can select any combination of Work Days, type in a number value for Start Time and Stop Time, and select an Increment of either 15 or 30 minutes for appointment times. You can also select different formats for Date and Time.

Start Time and Stop Time can be entered in several different formats:

- 9:00a or • 11:30p
- 9:00 • 23:30
- 0900 • 2330
- 9

Note: If you use 24-hour clock times in the Appointment Scheduler, make sure that the DOS time is also set to a 24-hour clock to ensure that the alarms associated with your appointments go off at the right time.

3. When you're satisfied with your selections, select OK. The Appointment Scheduler is now set.

Setting Holidays

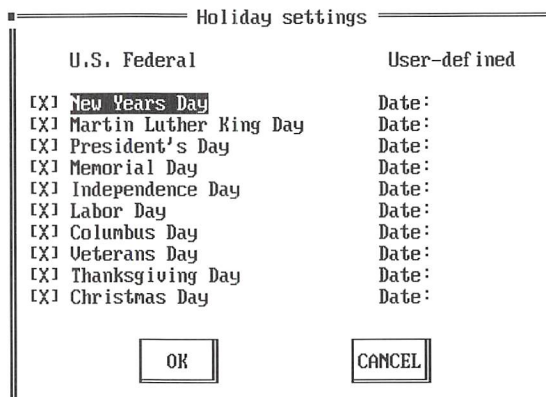
The Holiday Settings command allows you to designate which holidays you will observe. This is useful to avoid scheduling any appointments on holidays. Holidays appear with an asterisk (*) to the left of the date on the Daily Scheduler. (The Appointment

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Scheduler is intelligent enough to know what dates specified holidays fall on.) Recurring appointments will not be made on holidays. For example, if you make a recurring appointment on Mondays, the Monday holidays will not contain the appointment.

❑ To set holidays:

1. Choose Holiday Settings from the Controls menu.
The Holiday Settings dialog box appears. If you want to turn on or off any of the listed holidays, select that holiday. A checkmark appears in the box to the left of the holiday when it is “turned on.” You can also add any additional holidays that you observe by entering the dates in the Date column. Tab to the Date fields and enter the holidays you want using the same date format you selected in the Appointment Settings dialog box.



2. When you have set your holidays, select OK.

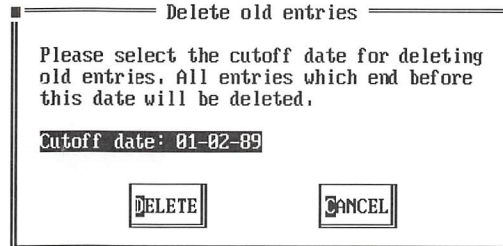
Deleting Old Entries

The Delete Old Entries command enables you to keep your Appointment Scheduler up to date by clearing out old appointments. In addition, deleting old entries prevents the Appointment Scheduler file from becoming too large. If the file becomes too large, you may begin to notice the Appointment Scheduler respond more slowly to commands on slower (4.77MHz) machines.

❑ To delete old entries:

- Choose Delete Old Entries from the Controls menu. This pops up the following dialog box so you can specify the

cutoff date for erasing old entries. All scheduled appointments ending before the specified date will be erased.



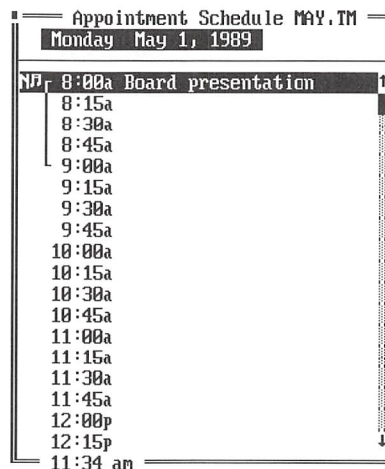
Note: If an alarm for an appointment sounds, then suddenly stops, try using the Delete Old Entries command.

Changing the Display Size

You have the option of reducing the size of the scheduler window by removing the To-Do List and Monthly Calendar display. If you would prefer to have a smaller window for your scheduler, use the Wide Display command.

☐ To change the display size:

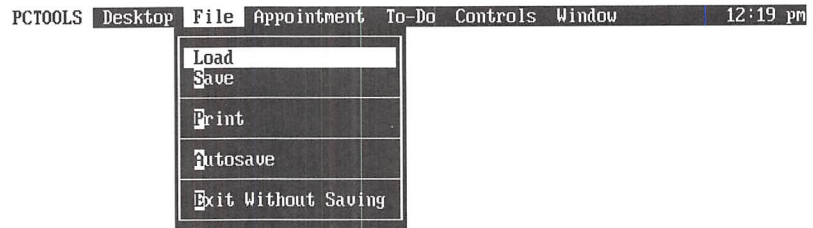
- Choose Wide Display from the Controls menu to toggle this setting on or off. When the setting is turned off, the Monthly Calendar and To-Do List are not displayed. When the setting is turned on, a checkmark appears to the left of the command name on the menu.



7. Appointment Scheduler

Working with Schedule Files

The File menu lets you print and save the list of appointments displayed. You can also load a different Appointment Scheduler file.



Loading an Existing Schedule

When you load an Appointment Scheduler file using the Load command, the currently open schedule is saved, and the new file is loaded.

❑ To load an existing schedule:

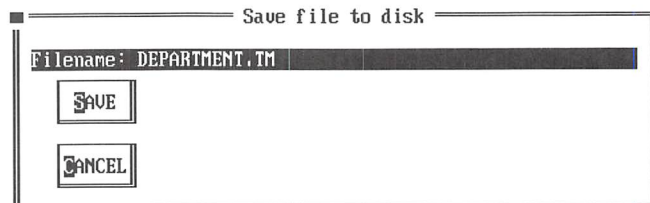
- Choose Load from the File menu.
The File Load dialog box appears containing the names of the existing Appointment Schedule files (*.TM). For information about using the File Load dialog box, see the *About PC Tools Desktop* chapter.

Saving Appointment Schedule Files

Appointment Scheduler files are automatically saved when you press ESC or click on the close box. In addition you can save a schedule using the Save command from the File menu.

❑ To save a schedule:

1. Choose Save from the File menu.
The Save File to Disk dialog box (shown below) appears with the name of the current schedule in the Filename text box. If you want to save your changes to a different schedule, or keep different versions of the schedule, you may enter a new name in the Filename text box.



2. Select Save to save the schedule.

Printing your Schedule

Note: Saving a .TM file by a new name does not copy or rename any existing notes attached to appointments or to-do entries. Use PC Shell if you want to globally rename a .TM file and all of its attached notes.

You can print daily, weekly, or monthly copies of your schedules and to-do lists.

□ To print a schedule:

1. Choose Print from the File menu.

This pops up a dialog box asking if you want to print today's schedule and to-do list, a full week-at-a-glance, or a full month of schedules or to-do lists (beginning with today's date). You can also select whether or not to translate graphics characters.



2. Make your selection.
3. Select Print, and the printer output box comes up for you to select where you want to print (LPT1, LPT2, LPT3, COM1, COM2, or to a disk file).
4. Select Print, and the Appointment Scheduler starts the printout.

Note: Even printers that support IBM graphics characters cannot print the special IBM graphics characters used in the Appointment Scheduler to show when an alarm is set (the musical notes). Therefore, the musical notes will be translated to the symbols in the list below. In addition, if the translation option is selected in the dialog box, the graphics characters used to create the brackets will be changed to the following normal printing characters:

Single musical note	#
Double musical note	%

Top part of appointment bracket	/
Vertical line part of bracket	|
Bottom part of bracket	\

To cancel the printout once it has started, press ESC.

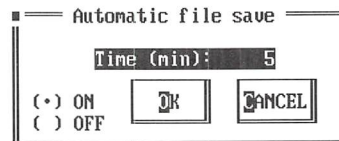
To autosave:

You can have the scheduler save your file automatically at specified intervals. The Autosave command saves a file just like the Save command, but at a specific time interval that you set. It is recommended that you use this command to minimize any data loss from power outages.

Autosave is global to Notepads, Outlines, the Macro Editor, and the Appointment Scheduler. When Autosave is turned on or off in any of these applications, it is turned on or off in all of them.

1. Choose Autosave from the File menu.

The Automatic File Save dialog box appears.



2. Type a number representing the number of minutes between each automatic save. The default setting is for five minutes.
3. Select either one of the automatic save option buttons:
On: turns on the automatic save for the amount of time you've set. The default setting is on.
Off: turns off the automatic save.
4. Select OK to set the automatic save.
At the specified interval your file is saved if you choose ON.

To exit without saving:

You can exit the Appointment Scheduler without saving any of the changes you made since you last saved. This is helpful if you've made changes and then decide you don't want to keep them.

- Choose Exit Without Saving from the File menu.
This closes the window without saving the changes you've made since the last time you saved.

Note: This procedure is not the same as pressing `esc` or clicking in the close box. These methods of exiting save your changes before exiting.

Running a Program at a Preset Time

If you want to set an alarm to run a program at a preset time, first, select the day and time you want to run the program. Then enter the text describing the program to be run next to the time on the Daily Schedule or in the Note text box in the Make Appointment dialog box. (If you've forgotten how to do this, refer to the "Making Appointments" section.)

Enter the name of the program and any parameters you want in the following way:

```
note | file name parameters
```

The note is any text you want to associate with the alarm, and file name is any legal DOS file name. This will cause the alarm to go off displaying the note and asking you if you want to run the program. You need to specify the full path so PC Tools Desktop knows where to find the file to run, or make sure that it is in the same directory as PC Tools Desktop or the directory is in the PATH statement. If the path name for the executable file will not fit in the appointment text box, then create a batch file to run the file, and put the name of the batch file in the appointment.

If you want the program to automatically execute when the alarm goes off, without prompting you, then enter the program you want to run as follows:

```
|file name
```

Here's what happens:

If the characters following the vertical bar ("|") look like an executable program, PC Tools Desktop will issue the program file name to DOS and run the program. (Any executable file must have one of the following extensions: .BAT, .COM, or .EXE.) If the name

7. Appointment Scheduler

does not look like an executable program, the file is loaded into a Notepads window. See the following section for how to load a file into a Notepads window at a preset time.

Note: Spaces are not required around the vertical bar ("|").

It is very convenient to start programs that do not require much input and take a fairly long time to run at a predefined time (usually when you are not using your computer, for example, at the end of the day or at lunch). Ideal programs to be run during off-hours are hard-disk backup (to tape) and compression programs.

The following example shows an alarm that will run the PC Tools Utilities Compress program to unfragment your hard disk at midnight. Since the program requires parameters, the alarm runs a batch program, COMPRESS.BAT, which starts the compress program. Set the alarm with the following settings in the Make Appointment dialog box below:

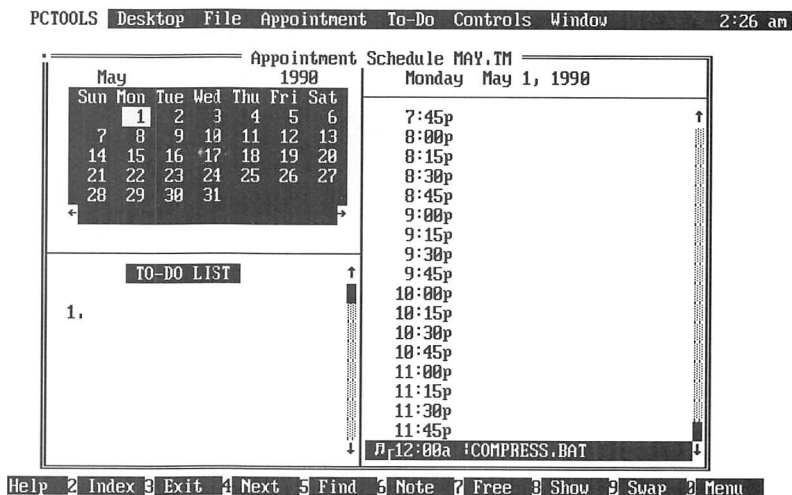
Make appointment

Start date: 05-01-90
End date: none
Time: 12:00a
Note: COMPRESS.BAT
Type:

When	Duration	Alarm
<input type="checkbox"/> Today only	Days: 0	<input type="checkbox"/> No alarm
<input checked="" type="checkbox"/> Every day	Hours: 1	<input checked="" type="checkbox"/> Simple alarm
<input type="checkbox"/> Work days	Minutes: 0	<input type="checkbox"/> 5 min advance
<input type="checkbox"/> Weekly		<input type="checkbox"/> 10 min advance
<input type="checkbox"/> Monthly - fixed day		
<input type="checkbox"/> Monthly - fixed weekday		<input type="checkbox"/> Attach note

TAKE CANCEL

The following screen shows you how the Daily Scheduler appears with the preset program:

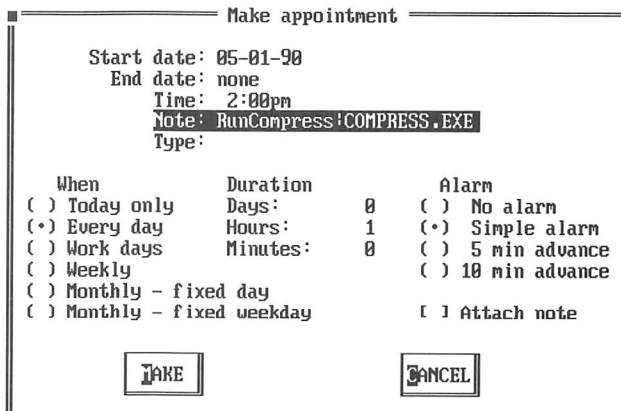


The file COMPRESS.BAT contains

```
\PCTOOLS\COMPRESS C: /CF
```

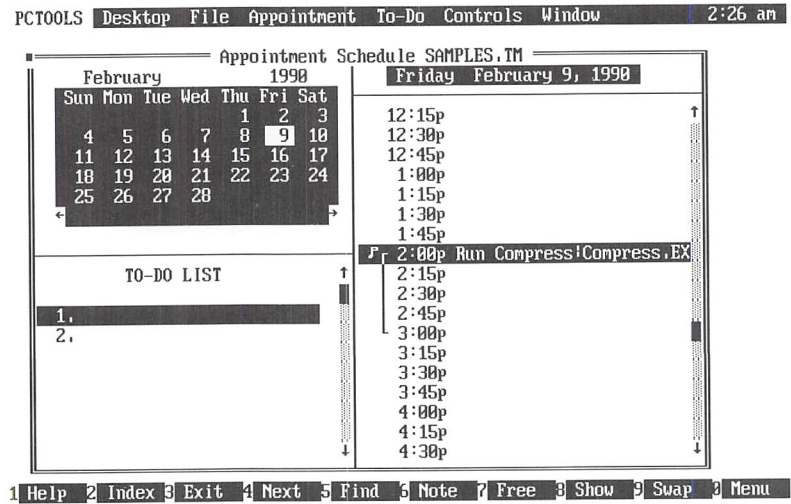
Since the text of the appointment has nothing prior to the "|", the program will automatically be run at midnight. Compress will run to completion.

If you want to set an alarm that will remind you to run Compress during the day, then set the following alarm:

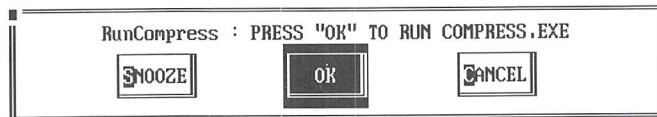


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The screen below shows you how the Daily Scheduler appears with the preset program:



At 2:00 p.m. the alarm will go off and display the following:



If you select OK, Compress will be run just as if you had typed COMPRESS at the DOS prompt.

Loading a Notepads File at a Preset Time

If you want to set an alarm to load a file into a Notepads window, select the day and time you want to load the file. Then enter the text associated with the alarm (the name of the appointment) next to the time on the Daily Schedule or in the Note text box in the Make Appointment dialog box. (If you've forgotten how to do this, refer to the "Making Appointments" section.)

Type the file name to be loaded into the Notepads window in the following way:

```
note | file name
```

The note is any text you want to associate with the alarm, and the file name is any legal DOS file name. This setup will cause the alarm to go off, displaying the note and asking if you want to load the file into a Notepads window. You need to specify the full path so PC Tools

Desktop knows where to find the file to load, or make sure that it is in the same directory as PC Tools Desktop or the directory is in the PATH statement.

If you want the file to be automatically loaded into a Notepads window when the alarm goes off, without prompting you, then you would enter the file name to be loaded as follows:

```
|file name
```

When nothing follows the “|” and there is an attached note, the attached note is loaded when the alarm goes off.

Attaching a document to an alarm is a handy way to pull up a Notepads file when an alarm goes off so it is ready for a meeting. For example, assume you have been keeping notes for a staff meeting in a document named STAFF.TXT, created with Notepads. Your staff meeting is at 9:00 am tomorrow. You don't want to forget the meeting, and you want to have your notes ready on the screen before you start the meeting.

The screen below shows you an example of how this looks when you set the appointment in the Make Appointment dialog box:

Make appointment

Start date: 02-09-90
End date: none
Time: 9:00a
Note: Staff Meeting!STAFF.TXT
Type:

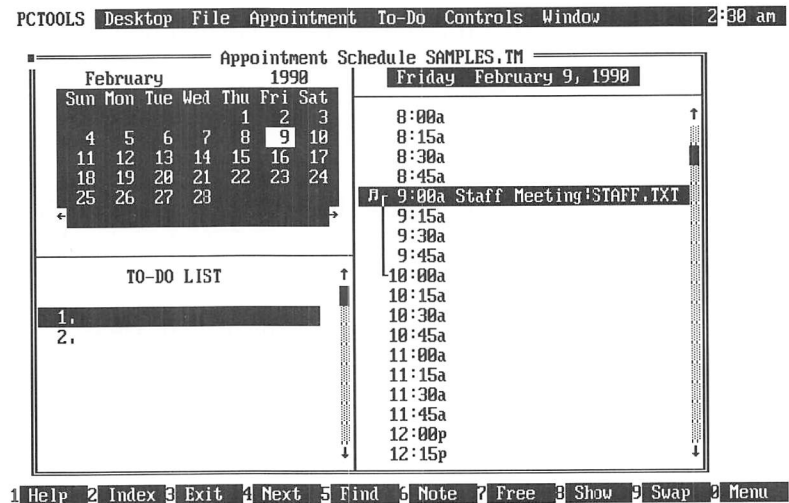
When	Duration	Alarm
<input type="checkbox"/> Today only	Days: 0	<input type="checkbox"/> No alarm
<input checked="" type="checkbox"/> Every day	Hours: 1	<input checked="" type="checkbox"/> Simple alarm
<input type="checkbox"/> Work days	Minutes: 0	<input type="checkbox"/> 5 min advance
<input type="checkbox"/> Weekly		<input type="checkbox"/> 10 min advance
<input type="checkbox"/> Monthly - fixed day		
<input type="checkbox"/> Monthly - fixed weekday		<input type="checkbox"/> Attach note

MAKE

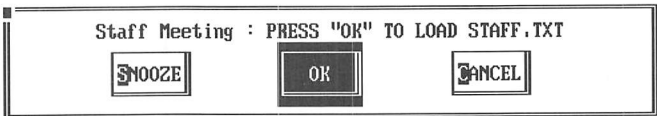
CANCEL

7. Appointment Scheduler

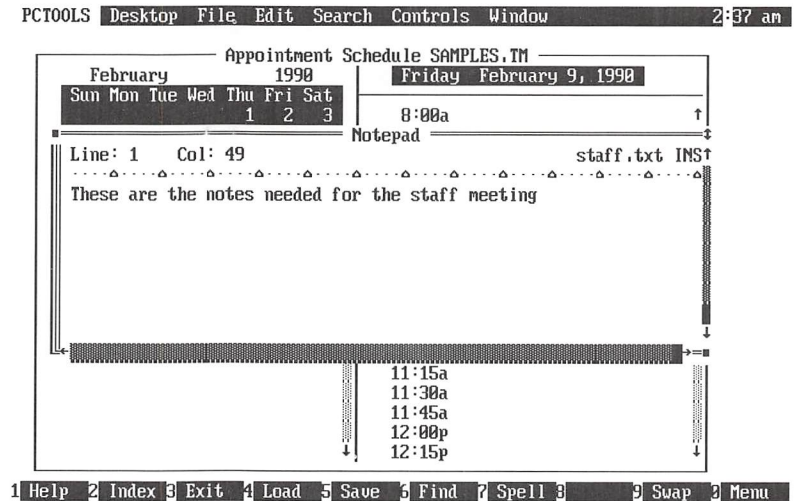
The screen below shows you how the Daily Scheduler appears with a file name:



The alarm will alert you about the meeting at 8:50 (ten minutes before the meeting starts) with a beep and a note on your computer's screen



Selecting OK will cause the STAFF.TXT file to be loaded into a Notepad's window.



Alternately, you could have attached a note at the time the alarm was set that contains the meeting notes. (Make sure the vertical bar appears as the last item in the Note text box if you want the note to appear when the alarm goes off.)

Make appointment

Start date: 02-09-90

End date: none

Time: 9:00a

Note: Staff Meeting!

Type:

When

Duration

Alarm

() Today only

Days: 0

() No alarm

() Every day

Hours: 1

(*) Simple alarm

() Work days

Minutes: 0

() 5 min advance

(*) Weekly

() 10 min advance

() Monthly - fixed day

[X] Attach note

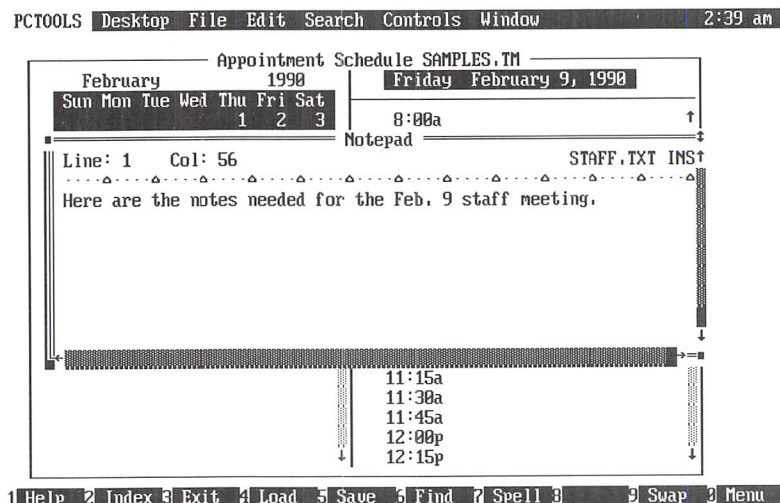
() Monthly - fixed weekday

MAKE

CANCEL

7. Appointment Scheduler

When the alarm goes off, the attached note pops up (below).



Combining Macros with the Appointment Scheduler

Putting macros into your appointment notes can be extremely useful. By predefining a macro, you can have your computer system do almost any task automatically or with greatly reduced input from you. Also, since the Macro Editor is an internal PC Tools Desktop application, you won't have to create special batch files to execute long commands. And since macros are independent of the Appointment Scheduler, you can use them anytime. Note that only the alarms from the last loaded schedule file are active.

If you want to set an alarm to run a macro, first, select the day and time you want to run the macro. Then enter the text associated with an alarm (the name of the appointment) next to the time on the Daily Scheduler or in the Note text box in the Make Appointment dialog box. (If you've forgotten how to do this, refer to the "Making Appointments" section.)

Type the macro in the following way:

```
appointment name | macro name
```

The screen below shows you how this macro looks when you set the appointment in the Make Appointment dialog box:

Make appointment

Start date: 05-01-90
 End date: 06-01-90
 Time: 9:00 am
 Note: Call Acme!<ctrlf6>
 Type:

When	Duration	Alarm
<input type="checkbox"/> Today only	Days: 0	<input type="checkbox"/> No alarm
<input checked="" type="checkbox"/> Every day	Hours: 1	<input type="checkbox"/> Simple alarm
<input type="checkbox"/> Work days	Minutes: 0	<input checked="" type="checkbox"/> 5 min advance
<input type="checkbox"/> Weekly		<input type="checkbox"/> 10 min advance
<input type="checkbox"/> Monthly - fixed day		
<input type="checkbox"/> Monthly - fixed weekday		<input type="checkbox"/> Attach note

TAKE CANCEL

The vertical bar indicates that a macro name follows. When the macro name is preceded by an appointment name, as the above example shows, the alarm will go off, then display a message box (below) on the screen with the appointment name. In addition, the message box will indicate that a macro is attached and ask if you want to run it.

Call Acme : PRESS "OK" TO EXECUTE ATTACHED MACRO

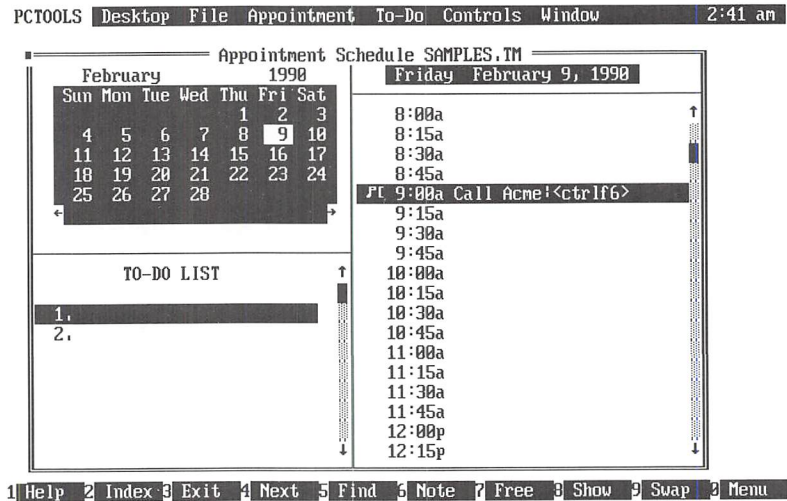
SNOOZE OK CANCEL

If you want the macro to automatically execute when the alarm goes off, type the macro in the note box the following way:

| macro name

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The screen below shows you how the Daily Scheduler appears with a macro:



The following pages contain examples of using macros in your appointments. All these examples are contained in the file SAMPLE.PRO. You can modify them, delete them, or expand on them to suit your tastes. They can be used from DOS, or inside other running programs, as well as in the PC Tools Desktop Appointment Scheduler.

Running a Program at a Preset Time

It is very convenient to start programs that do not require much input and take a fairly long time to run at a predefined time (usually when you are not using your computer, for example, at the end of the day or at lunch). Ideal programs to be run during off-hours are hard-disk backup (to tape) and compression programs.

The following example will run the PC Tools Utilities Compress program to unfragment your hard disk. You can use this example (or modify it) or use the method described above.

❑ To run a program at a preset time:

1. First, determine the date and time you want to run Compress. For this example, let's assume you want to run it at 5:00 pm every day.
2. Run PC Tools Desktop (or press the hotkey to bring it up if it is resident).

3. Select the Appointment Scheduler from the main PC Tools Desktop menu.
4. Tab into the appointment list and scroll to 5:00 pm.
5. Enter the following text on the 5:00 appointment time line:

```
|<ctrlf5> run compress
```

The “run compress” portion is just a note for you so you know what the appointment will do. The alarm manager will ignore it. It is the <ctrlf5> macro that really runs Compress.

6. Press the ENTER key, and the Make Appointment dialog box appears.
7. Select work days (assuming you want to compress your hard disk only on days you use it) and simple alarm. You can make the duration short, but we recommend that it cover at least the maximum time for your program (Compress in this case) to run. Select 1 hour.

Your appointment is now set.

Next, you need to define what you want <ctrlf5> to do using the Macro Editor. In this case, we have already created a sample file (SAMPLE.PRO) that has this macro in it. Before it will work, however, you need to tell the Macro Editor to make it active.

To activate the macro:

1. Choose Macro Editor from the main PC Tools Desktop menu.
2. From the File Load dialog box, select the file SAMPLE.PRO.
3. Choose Macro Activation from the File menu.
4. Select the Active Everywhere option.
All the SAMPLE.PRO macros are now active and ready to use until you deactivate them with the Erase All Macros command from the Controls menu.

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Here is what the ctrlf5 macro looks like:

This macro runs the PC Tools Utilities Compress program:

```
<begdef><ctrlf5>cd\PCTOOLS<enter>Compress C: /CF<enter><enddef>
```

The first line is just a comment. The <begdef> starts the macro definition. <ctrlf5> is the key sequence that will start the macro running (the macro name). The actual macro text starts next and will change to the PCTOOLS subdirectory then run the Compress program for drive C with the /CF option, which will do a full compression of your hard disk. The <enddef> ends this macro.

Important: *If you want to run a program (in this case, Compress) using a macro from the Appointment Scheduler, you must make sure that you do not have any running DOS programs (except for PC Tools Desktop). You can either be at the DOS prompt or in any of the PC Tools Desktop applications when your macro appointment alarm goes off, but you can't be, for example, in Lotus 1-2-3. DOS will need to be available to run the program, which it is not if it is busy running another program.*

That's all there is to it. Your macro is defined and your appointment alarm is set. Instead of giving you the normal dialog box alarm, it will execute your macro and compress your hard disk for you automatically every work day at 5:00 pm. You may continue to use your system normally. Make sure that at 5:00, you are not running any programs (other than PC Tools Desktop resident).

Attaching a Document to an Alarm

Attaching a document to an alarm is a handy way to pull up a file of notes when an alarm goes off so it is ready for a meeting. For example, assume you have been working on a document created with Notepads named SAMPLE.TXT. At 10:00 am tomorrow, you want to call your client (ACME Corp.) and go over the notes. You don't want to forget the meeting and you want to have your notes on the screen when you call. Additionally, you would like to pull up the SAMPLE.DBF database and find ACME's phone number automatically so you can call them.

The following example will alert you about the meeting at 9:55 (five minutes before you are to call) with a beep and a note on your computer's screen. Once you acknowledge the alarm, the macro will start PC Tools Desktop, pull up the SAMPLE.TXT file for your

reference during the call, and find ACME in the SAMPLE.DBF database.

❏ To create the appointment in the Appointment Scheduler:

- Scroll to 10:00 am tomorrow in your appointment list and type the following:

```
Call ACME |<ctrlf6>
```

The <ctrlf6> macro in your SAMPLE.PRO file (which you made active in the last example), looks like this:

Pop up Desktop and load SAMPLE.TXT, and find ACME in SAMPLE.DBF database

```
<begdef><ctrlf6><desk>NSAMPLE.TXT<enter><desk>
```

```
DSAMPLE.DBF<enter><alts>TACME<alts><altc><enddef>
```

All the macro commands are just what you would type from the keyboard (except <desk>, which replaces the PC Tools Desktop hotkey). <begdef><ctrlf6> defines the name of this macro. <desk> pulls up the desktop main menu. "N" selects Notepads, and SAMPLE.TXT<enter> loads your notes file. The <desk>DSAMPLE.DBF<enter> sequence loads the SAMPLE database, and the <alts>TACME<alts><altc> character string does the search for ACME. <enddef> finishes the macro.

Of course, you may not wish to create a special macro for each appointment, as this can be time consuming. The above example is handy, but a general version might be more practical. For example, instead of having the SAMPLE.TXT file and ACME fixed in the macro, it could ask you for these names. All you do is supply the file to load and the customer to search for. Here is a macro that will do this for you:

Pop up Desktop and ask which NOTEPADS file to load, and ask which customer to find in the SAMPLE.DBF database:

```
<begdef><ctrlf7><desk>N<vfld>..<vfld><enter><desk>D
```

```
SAMPLE.DBF<enter><alts>T<vfld>..<vfld><alts><altc>
```

```
<enddef>
```

This uses the variable fill-in-the-blanks macro command to get the names from you during execution of the macro (see “To create variable-length fill-in-the-blanks” in the *Macro Editor* chapter).

To use this macro, you could create an appointment like the following in your appointment schedule:

```
Call ACME |<ctrlf7>
```

Automatically Dialing Phone Numbers

To automatically dial a phone number, you must have a Hayes-compatible modem. Also, your telephone should be connected to the same line as the modem so you can pick up the call after the modem dials the number. Here's an example of a macro that will alert you that you are to call ACME, then do a general lookup in the SAMPLE.DBF database, find the phone number and dial it automatically for you:

```
load SAMPLE.DBF, ask for client to find, then dial  
the phone number
```

```
<begdef><ctrlf8><desk>DSAMPLE.DBF<enter><alts>T
```

```
<vfld>..  
<vfld><alts><altc><altc>A<cmd>d15<enter>
```

```
<enddef>
```

The last line of this macro selects the Autodial command from the Databases Controls menu, then waits 15 seconds using the Macro Editor Playback Delay command. After you hear your modem dial the phone number, you should pick up the handset of the phone attached to the same line as the modem. The modem will disconnect and you will be on the line when your client answers the phone. You may need to vary the duration of the delay for your modem. If it hangs up the phone too quickly, increase the delay.

The following appointment will invoke the above example:

```
Call ACME |<ctrlf8>
```

The alarm will go off and wait for you to acknowledge it. Then the macro will load PC Tools Desktop and the SAMPLE.DBF database and will pause, waiting for you to type “ACME”. Then it will dial the number for you.

Note: When using the Autodialer feature with a database, make sure the phone number is defined before other number fields in your database. See the Databases chapter for more information on autodialing.

Also, remember to include the area code and long-distance code (usually a "1") in your long-distance phone numbers, unless you have entered values for these in the Configure Autodialer dialog box (available in the Controls menu of Databases). If your phone requires that you dial a "9" or other access code to get an outside line, this will need to be included in your database (or Configure Autodialer dialog box) as well in order for autodialing to work. The Autodialer will faithfully dial all the digits in the phone number. If the number is NOT long distance, make sure to omit the 1 and area code.

Creating a Notes File for the Day

You may find that the Appointment Scheduler To-Do List doesn't offer all the flexibility you want. It is very useful for keeping track of important tasks as they roll forward from day to day. However, if you would like to have a standard Notepads file to enter free-form text, here is a quick macro to do this:

Create (or load) a daily notepad file:

```
<begdef><ctrlN><desk>N<date>.TXT<enter><enter>  
  
<enddef>
```

Anytime you press CTRL-N, Notepads will create or load a file whose name is today's date (for example, 3-18-90.TXT is the file for March 18, 1990). You can enter or edit your thoughts using the full Notepads editor and put them away with just a touch of the ESC key or click of the mouse in the close box.

Dialing a Remote Service and Transferring Files

You can use the Appointment Scheduler to dial a remote service (such as CompuServe and MCI Mail) to get your mail or receive or transmit a file when the rates are low. Your PC Tools disk includes sample scripts for automated connection to many services. Here is an example of a macro to invoke MCI and read your mail:

Read MCI mail:

```
<begdef><ctrlf9><desk>TM1<enter>1<enter><esc>  
<cmd>d20:0<enter><esc><esc><enddef>
```

Enter the following appointment with a simple alarm to execute this macro:

```
|<ctrlf9> read MCI mail
```

You need to make sure that your account ID, password, and MCI access phone number have been entered into PHONE.TEL before using this macro. You can do this by editing the file with Notepads.

Here's how it works:

`<desk>` brings up PC Tools Desktop, `"T"` selects Telecommunications, and `"M"` selects Modem Telecommunications. The first `"1<enter>"` selects option 1 from the PHONE.TEL file window that is displayed, which is MCI using the MCI.SCR file. The next `"1<enter>"` selects the Read Mail option from the script automated menu. This option will dial the MCI phone number and execute the script file that will log on, read your mail, then log off. `<cmd>d20:0<enter><esc><esc>` invokes the Playback Delay command to wait for 20 minutes and then issues two `ESCAPE` keys that will terminate this macro, leaving you at the same point as you were before the macro was run. `<enddef>` ends the macro.

You can create different macros easily by just changing the number of the service you want. For example, changing the `"1"` to `"3"` will dial CompuServe, using the sample PHONE.TEL file we provide.

8. Starting Telecommunications

PC Tools Desktop Telecommunications allows you to perform two types of telecommunications: Modem Telecommunications, which enables you to connect your PC to virtually any other computer system via a modem; and Fax Telecommunications, which allows you to send and receive faxes if you have a fax board in your computer or anywhere in your Novell NetWare network.

Using a Modem

With a Hayes-compatible modem, you can dial out and connect to local bulletin board systems (BBS) or commercial online services such as MCI, CompuServe, or EasyLink, and take advantage of such facilities as electronic mail, conferencing, and data querying.

Online services are networks of electronic information that allow you to perform a wide variety of tasks, such as sending faxes, telexes, and electronic mail; checking the status of the stock market; shopping for goods and services; talking to other computer users via bulletin boards; and reviewing news stories. For more information on MCI Mail, call (800) 444-6245; for EasyLink, call (800) 527-5184; for CompuServe, call (800) 848-8199.

The ability to access the services mentioned above, including Central Point Software's BBS, have been provided for you in the Telecommunications phone directory, PHONE.TEL.

The Telecommunications program in PC Tools Desktop provides easy access to these services in the foreground or the background.

Modem Telecommunications has the following features:

- Supports baud rates from 300 to 19200.
- Uses any of your PC's communications ports.
- Transfers files in either XMODEM or ASCII protocols.
- Supports VT100 and VT52 terminal emulation.
- Automates procedures with script files and allows communication to occur in the foreground or the background.

- Lets you access data, such as names and phone numbers, stored in PC Tools Desktop's TELECOM.DBF database using script files.

Using a Fax Board

A fax board is simply an add-on board that allows your computer to perform many of the same functions as a facsimile machine. With a fax board and PC Tools Desktop's Fax Telecommunications application, you can send documents directly from your computer to any remote facsimile machine or to other computers with fax boards installed.

Fax Telecommunications also allows several users to make use of a single fax board on a network. If a fax board is installed in any computer in a Novell network, any user in the network can send and receive faxes using that fax board. Anyone within the network can also check the Fax Log for the status of faxes that have been sent and received.

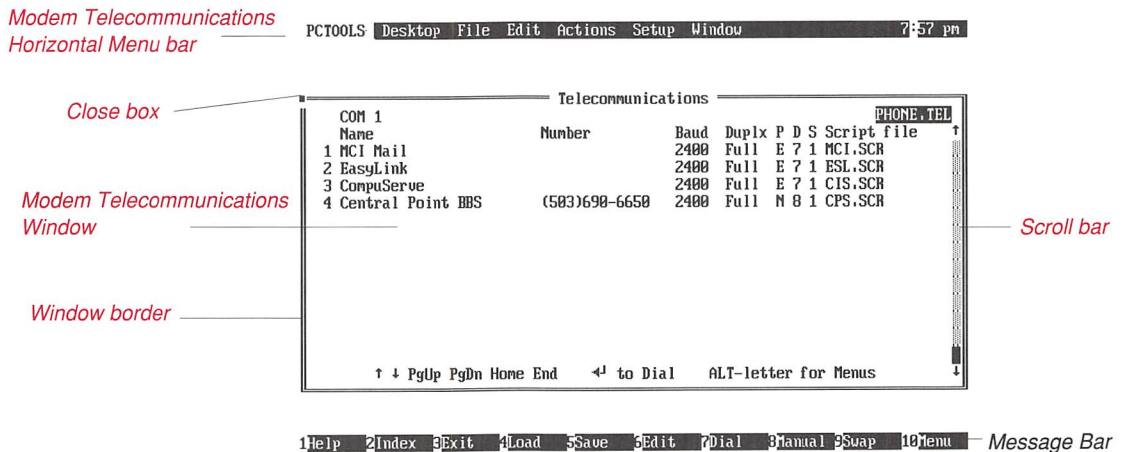
Fax Telecommunications has the following features:

- Supports Novell Network.
- Sends a fax to any remote facsimile machine or another computer with a fax board.
- Checks the Fax Log for the status of fax messages you have received or previously sent.
- Transmits fax messages automatically in the background.

9. Modem Telecommunications

Once Telecommunications is chosen from the PC Tools Desktop pull-down menu and then Modem Telecommunications from the submenu, the default phone directory file (PHONE.TEL) is loaded into the window and the application's horizontal menu appears across the top of the screen.

The Modem Telecommunications screen contains the following parts:



Modem Telecommunications Horizontal Menu Bar: contains the names of pull-down menus and a time display in the far-right corner.

Close Box: used with the mouse to close the window and escape the application.

Modem Telecommunications Window: contains summary information for each item in the phone directory. We have already installed entries in the default phone directory (PHONE.TEL) for popular online services, such as MCI, EasyLink, and CompuServe. For specific descriptions of the individual fields, see "Editing Phone Directory Entries" later in this section.

COM Port: shows the selected communications port your modem should be connected to.

File Name: shows the name of the current phone directory.

Name: contains a label you've assigned for the entry. It commonly contains the name of the computer service, like CompuServe, or the name of anyone you send files to. Type the number to the left of the name to quickly select the entry you want.

Number: contains the phone number to dial to connect with the remote computer. If this number is blank, you will be prompted for the number when you select Dial.

Baud: the speed at which the communication takes place. The higher the number, the faster the transmission.

Duplex: describes how computers treat transmitted data. Most systems are full duplex.

PDS: contains information about the character format used for transmission.

When you register for a computer information service or receive permission to access another computer system, you should get a password and a manual explaining what PDS, baud, and duplex settings are required to connect to the system.

Script File: contains the name of a file to give instructions to Modem Telecommunications for automatically performing specified operations. Script files are useful for logging onto a system or for other procedures you want to automate and are written and stored as ASCII or PC Tools Desktop text files.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Message Bar: displays a row of 10 shortcut keys for program commands. Clicking on the shortcut key with the mouse or pressing the corresponding function key (which is indicated in white on a black background) does the same as selecting the command from the menu. For example, to dial a number in a highlighted phone directory entry, just click on the Dial command in the Message Bar with the mouse or press the F7 key.

Scroll Bar: used with the mouse to move, or “scroll,” through the phone directory entries.

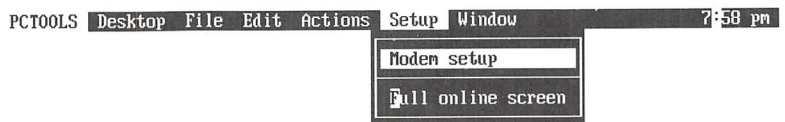
The following shows the shortcut keys supported by Modem Telecommunications:

Shortcut Key	Function
F1	Help
F2	Help Index
F3	Exit
F4	Load a phone directory file (.TEL)
F5	Save a phone directory file (.TEL)
F6	Edit the highlighted entry
F7	Dial number
F8	Manual dial
F9	Swap active windows
F10	Activate the horizontal menu bar

Configuring Your Modem

If you configured your modem parameters when running Install, your modem is already configured. If you didn't install modem configuration parameters at that time, you can now run Install again to do so.

If you want to change the default modem parameters you selected in Install, use the Modem Setup command in the Modem Telecommunications Setup menu to do this.



Modem configuration includes setting the proper modem init string, selecting the COM port that your modem is attached to, and indicating the type of dialing you prefer.

Modem init string:							
300/1200:	ATF1E0U1Q0X1						
2400/4800:	AT&C1&D0E0U1Q0X3&Q0						
9600/19200:	AT&C1&D0E0U1Q0X3&Q5						
Connect string: CONNECT							
<table><tr><td>PORT</td><td>DIALING</td></tr><tr><td>(.) COM1</td><td>(.) TONE</td></tr><tr><td>() COM2</td><td>() PULSE</td></tr></table>		PORT	DIALING	(.) COM1	(.) TONE	() COM2	() PULSE
PORT	DIALING						
(.) COM1	(.) TONE						
() COM2	() PULSE						
<table><tr><td><input type="button" value="ACCEPT"/></td><td><input type="button" value="CANCEL"/></td></tr></table>		<input type="button" value="ACCEPT"/>	<input type="button" value="CANCEL"/>				
<input type="button" value="ACCEPT"/>	<input type="button" value="CANCEL"/>						

COM Port

Selects which serial port is to be used for communications. COM3 and COM4 ports are supported only if you are using PS/2 models or if you are using the /C3 or /C4 parameter. (This is explained in the “PC Tools Desktop Parameters” section of the *Installation* chapter.) This option may have already been set when you installed PC Tools Desktop using Install, however, you can still change this at any time.

Dialing

Sets the modem command for touch-tone or pulse (rotary) dialing. This option may have already been set when you installed PC Tools Desktop using Install, however, you can still change this at any time.

Modem Init String

Modem Telecommunications automatically recognizes and uses one of three init strings depending on the baud rate selected in the Edit Phone Directory dialog box. For example, if you dial an entry from a phone directory that is set for 2400 baud, Modem Telecommunications would use the init string from the 2400/4800-baud rate setting. If you were using a 9600 baud selection, it would use the init string from the 9600/19200 setting.

The three settings and default initialization strings are:

Modem Baud Rate	Init String
300/1200 (300 to 1200 baud rate modems)	ATF1EOV1QOX1
2400/4800 (2400 to 4800 baud rate modems)	AT&C1&DOEOV1QOX3&QO
9600/19200 (9600 to 19200 baud rate modems)	AT&C1&DOEOV1QOX3&Q5

Connect String

The Modem Setup dialog box also contains a Connect String setting. A string is sent by your modem during transmission to tell Modem Telecommunications that it has made a phone connection. Hayes-compatible modems use the string "CONNECT," which is listed as the default in the Modem Setup dialog box.

***Note:** You may need to enter a different connect string if you are not using a Hayes-compatible modem. Consult your modem manual to see what connect string you should be using.*

❑ To change the modem setup:

1. Choose Modem Setup from the Modem Telecommunications Setup menu. The Modem Setup dialog box appears.

The init strings for 300/1200, 2400/4800, and 9600/19200 baud modems are displayed.
2. Click on the desired init string edit box with the mouse or use the TAB key.
3. Enter a new string.
If you aren't sure what to enter, consult your modem manual. The modem, not the Modem Telecommunications application, determines what the init string should be.
4. Enter a new connect string, if necessary.
5. Select the COM port that your modem is attached to, if you didn't already do this during installation with Install.
6. Select whether you want touch-tone or pulse (rotary) dialing, if you didn't already do this during installation with Install.

7. Select the Accept command button to save the modem setup changes.

Using MCI Mail

The default phone directory file, PHONE.TEL, comes with the MCI Mail online service already installed. If you are not already familiar with MCI Mail and do not have your User ID and password, you should first subscribe to MCI and receive the necessary information. Please call (800) 444-6245 for more information.

PC Tools Desktop's MCI Mail provides options to send electronic mail, read electronic mail, and send faxes without knowing anymore than the MCI Mail ID of the people you want to send mail to and the fax numbers of people you want to send faxes to. If you are an experienced MCI Mail user, you can also connect to MCI Mail and enter command mode and interact directly with MCI Mail to access all of its other capabilities.

Before you can use PC Tool's Desktop's MCI Mail, you must know the MCI Mail access phone number in your area, your MCI User ID, and your password, and then enter this information in the MCI Mail phonebook entry. The easiest way to install this information is to use Install. If you have already done this, then you can proceed.

If you have not already done so, you can run Install now, using option 2 on the initial Install start-up screen, and enter the MCI Mail information when you have the option to install Telecommunications information. You can also enter the information by editing the MCI Mail phonebook entry in the following way:

To edit MCI Mail:

1. Highlight MCI Mail in the main Telecommunications window by using the arrow keys, clicking MCI Mail once with your mouse, or pressing 1.
2. Edit the MCI Mail entry by pressing F6, or by choosing the Edit Entry command from the Edit pull down menu. The Edit Phone Directory dialog box appears.

Edit Phone Directory				
NAME: MCI Mail		SCRIPT: MCI.SCR		
PHONE:		PASSWORD:		
USER ID:				
DATABASE: C:\PCTOOLS\TELECOM.DBF				
FIELD 1: MCI_ID		FIELD 2: FAX_TELEX		
TERMINAL	END-OF-LINE PROCESSING		FLOW CONTROL	
(*) TTY	RECEIVE	SEND	(*) XON/OFF	
() ANSI	() ADD LF	() STRIP LF	() NONE	
() VT100	() ADD CR	() STRIP CR		
() VT52	(*) NONE	(*) NONE		
BAUD	PARITY	DATA-BITS	STOP-BITS	DUPLEX
() 300	() NONE	(*) SEVEN	(*) ONE	(*) FULL
() 1200	() ODD	() EIGHT	() TWO	() HALF
(*) 2400	(*) EVEN			
() 4800	() SPACE			
() 9600	() MARK			
() 19200				
ACCEPT			CANCEL	

- Most of the fields are already set up. Use the TAB key or the mouse to select the field you want to edit. You will need to enter the following information (if this has not already been done by Install):

Phone: enter the phone number for accessing MCI Mail.

User ID: type in your User ID, which MCI Mail provides after you have become a subscriber. This is used for identification when logging onto MCI Mail.

Password: type the password that MCI Mail provided you. After the password is saved by selecting the Accept command button, the characters are replaced by solid squares to conceal the password.

- Set Baud to match your modem and MCI Mail's baud rate (for example, 2400).
- Select the Accept command button. The dialog box closes, your editing changes are saved, and you are returned to the Telecommunications window.

❑ Using TELECOM.DBF with MCI Mail:

Note: You do not have to use TELECOM.DBF to use MCI Mail with Modem Telecommunication; this is an optional feature.

The best way to store and make use of the MCI IDs and fax numbers of people who you want to send mail or faxes to is to store that information in the TELECOM.DBF database, which was installed

with PC Tools Desktop. Before you use MCI Mail, use the following procedure to enter information into this database:

1. Choose Databases from the Desktop pull-down menu. Select TELECOM.DBF from the directory where you have PC Tools Desktop installed.
2. The phonebook database appears.

This database has fields to hold information for multiple online services per entry. The fields important for MCI Mail are:

Name: the name of the individual you are sending mail or faxes to.

Company: the name of the company or organization you are sending mail or faxes to.

FAX_TELEX: Fax or telex number for this individual or company.

MCI_ID: MCI User ID for this individual or company.

***Note:** To allow the MCI script file to use TELECOM.DBF to send faxes with MCI Mail, type the name of the person or company you are sending faxes to in the MCI_ID field. This is used to specify the name of the person or company you are sending the faxes to on the fax cover page.*

After you have finished editing the database, save your changes by pressing F3 or clicking on Exit on the Message Bar. This takes you back to the Telecommunications window.

If you are going to send a fax or electronic mail, you should use Notepads to create a file containing the information you want to send.

To connect to MCI Mail:

Now you are ready to call MCI Mail and use their services:

1. Select the MCI Mail entry by pressing 1 and then ENTER or by double-clicking with the mouse on the MCI Mail entry.

This dials the MCI phone number.

After the MCI Mail phone number has been dialed, the Telecommunications online screen appears and communication is under the control of the MCI script file, MCI.SCR. You do not need to be concerned about the script file to use MCI Mail.

2. After you have successfully logged on, the MCI Mail Automated Script option menu will prompt you for which service you want to use. Choose one of the following services by entering its corresponding number:

(1) Read Electronic Mail: allows you to read (download) the electronic mail stored in your mailbox.

(2) Send Electronic Mail: allows you to send (upload) electronic mail from your PC to other MCI Mail subscribers.

(3) Send Electronic Fax: allows you to send faxes to any remote facsimile machines.

(4) Enter MCI Command Mode: allows you to interact directly with MCI. Online help is provided by MCI.

Now proceed to the following section that describes the service you want to use.

Read Mail

1. You receive a message on the screen telling you that your mail is being captured and placed in an ASCII text file, TODAYS.MCI, which is stored in the directory you have your PCTOOLS Desktop programs installed in.
2. After the mail has been captured, MCI Mail is logged off, and you are returned to the main Telecommunications screen.
3. Choose Notepads from the Desktop main menu. This displays the Notepads File Load dialog box.
4. Select the TODAYS.MCI file from the directory where your PC Tools programs are located. For example, you might type, `C:\PCTOOLS\TODAYS.MCI`.

The file TODAYS.MCI appears for you to view your mail.

Send Mail

1. The database TELECOM.DBF appears and allows you to select the record with the MCI ID you want to send mail to.
2. Select the appropriate record by using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells MCI Mail who to send the mail to.

If you don't want to use the TELECOM database, press `ESC` and you are prompted for the MCI ID of the person you are sending mail to.

3. You are next asked to enter the name of the file containing the mail you want to send.

Type the drive and path name of the file you want to send. For example, if your message is in the file LETTER.MAI in your PCTOOLS directory on drive C, type in:

```
C:\PCTOOLS\LETTER.MAI
```

The file LETTER.MAI is sent to the the person with the MCI ID you've selected in TELECOM.DBF. After the transmission has finished, the MCI.SCR file will automatically disconnect you from the MCI Mail service, hang up, and return you to the Telecommunications phone directory.

Send Fax

1. The database TELECOM.DBF appears and allows you to select the record with the fax number you want to send a fax to.
2. Select the appropriate record by using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells MCI Mail where to send the fax.

If you do not want to use the TELECOM.DBF database, press `ESC` and you are prompted for the name and fax number of the person you are sending a fax to.

3. You are next asked to enter the name of the file containing the fax you want to send.

Type the drive and path name of the file you want to send. For example, if your fax is in the file LETTER.FAX in your PCTOOLS directory on drive C, type in:

```
C:\PCTOOLS\LETTER.FAX
```

The file LETTER.FAX is sent to the person with the fax number that you've selected in TELECOM.DBF. After the transmission has finished, the MCI.SCR file will automatically disconnect you from the MCI Mail service, hang up, and return you to the Telecommunications phone directory.

MCI Mail Command Mode

- You are prompted to enter a command or type `HELP` to receive more information about MCI Mail command mode for advanced users. There is also a Help glossary that provides you with a list of MCI Mail commands. This is available by typing `HELP GLOSSARY`.

Using EasyLink

The default phone directory file, PHONE.TEL, comes with the EasyLink online service already installed. If you are not already familiar with EasyLink and do not have your User ID and password, you should first subscribe to EasyLink and receive the necessary information. Please call (800) 527-5184 for more information.

PC Tools Desktop's EasyLink provides options to send electronic mail, read electronic mail, send electronic telexes, and send faxes without knowing any more than the EasyLink ID of the people you want to send mail to and the fax numbers of people you want to send faxes to. If you are an experienced EasyLink user, you can also connect to EasyLink and enter command mode and interact directly with EasyLink to access all of its other capabilities.

Before you can use PC Tool's Desktop's EasyLink, you must know the EasyLink access phone number in your area, your EasyLink User ID, and your password, and then enter this information in the EasyLink phonebook entry. The easiest way to install this information is to use Install. If you have already done this, then you can proceed.

If you have not already done so, you can run Install now, using option 2 on the initial Install start-up screen, and enter the EasyLink information when you have the option to install Telecommunications information. You can also enter the information by editing the EasyLink phonebook entry in the following way:

❑ To edit EasyLink:

1. Highlight EasyLink in the main Telecommunications window by using the arrow keys, clicking EasyLink once with your mouse, or pressing 1.
2. Edit the EasyLink entry by pressing F6 or by choosing the Edit Entry command from the Edit pull down menu. The Edit Phone Directory dialog box appears.

Edit Phone Directory

NAME: **EasyLink**

PHONE: _____ SCRIPT: **ESL.SCR**

USER ID: _____ PASSWORD: _____

DATABASE: **C:\PCTOOLS\TELECOM.DBF**

FIELD 1: **ESL_ID** FIELD 2: **FAX_TELEX**

TERMINAL	END-OF-LINE PROCESSING	FLOW CONTROL
(*) TTY	RECEIVE SEND	(*) XON/OFF
() ANSI	() ADD LF () STRIP LF	() NONE
() VT100	() ADD CR () STRIP CR	
() VT52	(*) NONE () NONE	

BAUD	PARITY	DATA-BITS	STOP-BITS	DUPLEX
() 300	() NONE	(*) SEVEN	(*) ONE	(*) FULL
() 1200	() ODD	() EIGHT	() TWO	() HALF
(*) 2400	(*) EVEN			
() 4800	() SPACE			
() 9600	() MARK			
() 19200				

ACCEPT **CANCEL**

3. Most of the fields are already set up. Use the TAB key or the mouse to select the field you want to edit. You will need to enter the following information (if this has not already been done by Install):

Phone: enter the phone number for accessing EasyLink.

User ID: type in your User ID, which EasyLink provides after you have become a subscriber. This is used for identification when logging onto EasyLink.

Password: type the password that EasyLink provided you. After the password is saved by selecting the Accept

command button, the characters are replaced by solid squares to conceal the password.

4. Set Baud to match your modem and EasyLink's baud rate (for example, 2400).
5. Select the Accept command button.
The dialog box closes, your editing changes are saved, and you are returned to the Telecommunications window.

❑ Using TELECOM.DBF with EasyLink:

Note: *You do not have to use TELECOM.DBF to use EasyLink with Modem Telecommunication; this is an optional feature.*

The best way to store and make use of the EasyLink IDs and fax numbers of people who you want to send mail or faxes to is to store that information in the TELECOM.DBF database, which was installed with PC Tools Desktop. Before you use EasyLink, use the following procedure to enter information into this database.

1. Choose Databases from the Desktop pull-down menu.
Select TELECOM.DBF from the directory where you have PC Tools Desktop installed.
2. The phonebook database appears.

This database has fields to hold information for multiple online services per entry. The fields important for EasyLink are:

Name: the name of the individual you are sending mail or faxes to.

Company: the name of the company or organization you are sending mail or faxes to.

FAX_TELEX: Fax or telex number for this individual or company.

ESL_ID: EasyLink User ID for this individual or company.

After you have finished editing the database, save your changes by pressing F3 or clicking on Exit on the Message Bar. This takes you back to the Telecommunications window.

If you are going to send a fax or electronic mail, you should use Notepads to create a file containing the information you want to send.

❑ To connect to EasyLink:

Now you are ready call EasyLink and use their services:

1. Select the EasyLink entry by pressing 2 and then `ENTER` or by double-clicking with the mouse on the EasyLink entry.

This dials the EasyLink phone number.

After the EasyLink phone number has been dialed, the Telecommunications online screen appears and communication is under the control of the EasyLink script file, `ESL.SCR`. You do not need to be concerned about the script file to use EasyLink.

2. After you have successfully logged on, the EasyLink Automated Script option menu will prompt you for which service you want to use. Choose one of the following services by entering its corresponding number:

(1) Read Electronic Mail: allows you to read (download) the electronic mail stored in your mailbox.

(2) Send Electronic Mail: allows you to send (upload) electronic mail from your PC to other EasyLink subscribers.

(3) Send Electronic Fax: allows you to send faxes to any remote facsimile machines.

(4) Send Electronic Telex: allows you send telexes to any remote telex machine.

(5) Enter EasyLink Command Mode: allows you to interact directly with EasyLink. Online help is provided by EasyLink.

Now proceed to the following section that describes the service you want to use.

Read Mail

1. You receive a message on the screen telling you that your mail is being captured and placed in an ASCII text file, `TODAYS.ESL`, which is stored in the directory you have your PCTOOLS Desktop programs installed in.
2. After the mail has been captured, EasyLink is logged off, and you are returned to the main Telecommunications screen
3. Choose Notepads from the Desktop main menu. This displays the Notepads File Load dialog box.
4. Select the `TODAYS.ESL` file from the directory where your PC Tools programs are located. For example, you might type, `C:\PCTOOLS\TODAYS.ESL`.

The file `TODAYS.ESL` appears for you to view your mail.

Send Mail

1. The database `TELECOM.DBF` appears and allows you to select the record with the EasyLink ID you want to send mail to.
2. Select the appropriate record using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells EasyLink who to send the mail to.

If you don't want to use the `TELECOM` database, press `ESC` and you are prompted for the EasyLink ID of the person you are sending mail to. You are next asked to enter the name of the file containing the mail you want to send.

3. Type the drive and path name of the file you want to send. For example, if your message is in the file `LETTER.MAI` in your PCTOOLS directory on drive C, type in:

`C:\PCTOOLS\LETTER.MAI`

The file `LETTER.MAI` is sent to the the person with the EasyLink ID you've selected in `TELECOM.DBF`. After the transmission has finished, the `ESL.SCR` file will automatically

disconnect you from the EasyLink service, hang up, and return you to the Telecommunications phone directory.

Send Fax

1. The database TELECOM.DBF appears and allows you to select the record with the fax number you want to send a fax to.
2. Select the appropriate record using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells EasyLink where to send the fax.

If you do not want to use the TELECOM.DBF database, press `ESC` and you are prompted for the fax number of the person you are sending a fax to.

3. You are next asked to enter the name of the file containing the fax you want to send.

Type the drive and path name of the file you want to send. For example, if your fax is in the file LETTER.FAX in your PCTOOLS directory on drive C, type in:

```
C:\PCTOOLS\LETTER.FAX
```

The file LETTER.FAX is sent to the person with the fax number that you've selected in TELECOM.DBF. After the transmission has finished, the ESL.SCR file will automatically disconnect you from the EasyLink service, hang up, and return you to the Telecommunications phone directory.

Send Telex

1. The database TELECOM.DBF appears and allows you to select the record with the telex number you want to send a telex to.
2. Select the appropriate record using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells EasyLink where to send the telex.

If you do not want to use the TELECOM.DBF database, press ESC and you are prompted for the telex number of the person you are sending the telex to.

3. You are next asked to enter the name of the file containing the telex you want to send.

Type the drive and path name of the file you want to send. For example, if your telex is in the file LETTER.TLX in your PCTOOLS directory on drive C, type in:

```
C:\PCTOOLS\LETTER.TLX
```

The file LETTER.TLX is sent to the person with the telex number that you've selected in TELECOM.DBF. After the transmission has finished, the ESL.SCR file will automatically disconnect you from the EasyLink service, hang up, and return you to the Telecommunications phone directory.

EasyLink Command Mode

- You are prompted to enter a command or type HELP to receive more information about EasyLink command mode for advanced users. There is also a Help index that provides you with a list of EasyLink commands. This is available by typing HELP.

Using CompuServe

The default phone directory file, PHONE.TEL, comes with CompuServe already installed. If you are not already familiar with CompuServe and do not have your User ID and password, you should first subscribe to CompuServe and receive the necessary information. Please call (800) 848-8199 for more information.

The CompuServe entry in the phone directory provides options for you to read electronic mail, send electronic mail, send a fax, access the PC Magazine Forum, and enter CompuServe command mode. The first two options provide automated use of these CompuServe functions without having to learn all of the details of using CompuServe; however, the last option provides access to all CompuServe capabilities by logging you on to CompuServe and letting you interact directly with it.

Before you can use PC Tool's Desktop's CompuServe, you must know the CompuServe access phone number in your area, your CompuServe User ID, and your password, and then enter this information in the CompuServe phonebook entry. The easiest way to

install this information is to use Install. If you have already done this, then you can proceed.

If you have not already done so, you can run Install now, using option 2 on the initial Install start-up screen, and enter the CompuServe information when you have the option to install Telecommunications information. You can also enter the information by editing the CompuServe phonebook entry in the following way:

❑ To edit CompuServe:

1. Highlight CompuServe Mail in the main Telecommunications window by using the arrow keys, clicking CompuServe once with your mouse, or pressing 3.
2. Edit the CompuServe entry by pressing F6 or by choosing the Edit Entry command from the Edit pull down menu. The Edit Phone Directory dialog box appears.

Edit Phone Directory

NAME: **CompuServe**

PHONE: _____

USER ID: _____

SCRIPT: CIS.SCR

DATABASE: C:\PCTOOLS\TELECOM.DBF

PASSWORD: _____

FIELD 1: CIS_ID

FIELD 2: FAX_TELEX

TERMINAL	END-OF-LINE PROCESSING	FLOW CONTROL
(*) TTY	RECEIVE	(*) XON/OFF
() ANSI	() ADD LF	() STRIP LF
() VT100	() ADD CR	() STRIP CR
() VT52	(*) NONE	(*) NONE

BAUD	PARITY	DATA-BITS	STOP-BITS	DUPLEX
() 300	() NONE	(*) SEVEN	(*) ONE	(*) FULL
() 1200	() ODD	() EIGHT	() TWO	() HALF
(*) 2400	(*) EVEN			
() 4800	() SPACE			
() 9600	() MARK			
() 19200				

ACCEPT **CANCEL**

3. Most of the fields are already set up. Use the TAB key or the mouse to select the field you want to edit. You will need to enter the following information (if this has not already been done by Install):

Phone: enter the phone number for accessing CompuServe.

User ID: type in your User ID, which CompuServe provides after you have become a subscriber. This is used for identification when logging onto CompuServe.

Password: type the password that CompuServe provided you. After the password is saved by selecting the Accept command button, the characters are replaced by solid squares to conceal the password.

4. Set Baud to match your modem and CompuServe's baud rate (for example, 1200).
5. Select the Accept command button.
The dialog box closes, your editing changes are saved, and you are returned to the Telecommunications window.

❑ Using TELECOM.DBF with CompuServe:

Note: *You do not have to use TELECOM.DBF to use CompuServe with Modem Telecommunication; this is an optional feature.*

The best way to store and make use of the CompuServe IDs and fax numbers of people who you want to send mail or faxes to is to store that information in the TELECOM.DBF database, which was installed with PC Tools Desktop. Before you use CompuServe, use the following procedure to enter information into this database:

1. Choose Databases from the Desktop pull-down menu. Select TELECOM.DBF from the directory where you have PC Tools Desktop installed.
2. The phonebook database appears.

This database has fields to hold information for multiple online services per entry. The fields important for CompuServe are:

Name: the name of the individual you are sending mail or faxes to.

Company: the name of the company or organization you are sending mail or faxes to.

FAX_TELEX: Fax or telex number for this individual or company.

CIS_ID: CompuServe User ID for this individual or company.

After you have finished editing the database, save your changes by pressing F3 or clicking on Exit on the Message Bar. This takes you back to the Telecommunications window.

If you are going to send a fax or electronic mail, you should use Notepads to create a file containing the information you want to send.

❑ To connect to CompuServe:

Now you are ready to call CompuServe and use their services:

1. Select the CompuServe entry by pressing 1 and then ENTER or by double-clicking with the mouse on the CompuServe entry.

This dials the CompuServe phone number.

After the CompuServe phone number has been dialed, the Telecommunications online screen appears and communication is under the control of the CompuServe script file, CIS.SCR. You do not need to be concerned about the script file to use CompuServe.

2. After you have successfully logged on, the CompuServe Automated Script option menu will prompt you for which service you want to use. Choose one of the following services by entering its corresponding number:

(1) Read Electronic Mail: allows you to read (download) the electronic mail stored in your mailbox.

(2) Send Electronic Mail: allows you to send (upload) electronic mail from your PC to other CompuServe subscribers.

(3) Send Electronic Fax: allows you to send faxes to any remote facsimile machines.

(4) PC Magazine Forum: allows you to access PC Magazine to download and upload files.

(5) Enter CompuServe Command Mode: allows you to interact directly with CompuServe. Online help is provided by CompuServe.

Now go on to the following section that describes the service you want to use.

Read Mail

1. You will be put into CompuServe's EasyPlex mail service where you can read your mail using CompuServe's menus.
2. After you have read your mail, you can enter any of CompuServe's other commands or type `BYE` to log off CompuServe.

Send Mail

1. The database `TELECOM.DBF` appears and allows you to select the record with the CompuServe ID you want to send mail to.
2. Select the appropriate record using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells CompuServe who to send the mail to.

If you don't want to use the `TELECOM` database, press `ESC` and you are prompted for the CompuServe ID of the person you are sending mail to. You are next asked to enter the name of the file containing the mail you want to send.

3. Type the drive and path name of the file you want to send. For example, if your message is in the file `LETTER.MAI` in your `PCTOOLS` directory on drive `C`, type in:

```
C:\PCTOOLS\LETTER.MAI
```

The file `LETTER.MAI` is sent to the the person with the CompuServe ID you've selected in `TELECOM.DBF`. After the transmission has finished, the `CIS.SCR` file will automatically disconnect you from the CompuServe service, hang up, and return you to the Telecommunications phone directory.

Send Fax

1. The database `TELECOM.DBF` appears and allows you to select the record with the fax number you want to send a fax to.
2. Select the appropriate record using the arrow keys and then pressing `ENTER` or by double-clicking on the record with the mouse.

This tells CompuServe where to send the fax.

If you do not want to use the TELECOM.DBF database, press ESC and you are prompted for the fax number of the person you are sending a fax to.

3. You are next asked to enter the name of the file containing the fax you want to send.

Type the drive and path name of the file you want to send. For example, if your fax is in the file LETTER.FAX in your PCTOOLS directory on drive C, type in:

```
C:\PCTOOLS\LETTER.FAX
```

The file LETTER.FAX is sent to the person with the fax number that you've selected in TELECOM.DBF. After the transmission has finished, the CIS.SCR file will automatically disconnect you from the CompuServe service and hang up, and return you to the Telecommunications phone directory.

PC Magazine Forum

- Choose from a variety of menu options such as downloading utility programs, conferencing, and leaving messages to the magazine staff. Then follow the instructions on the screen.

CompuServe Command Mode

- You are prompted to enter a command or type `HELP` to receive more information about CompuServe command mode for advanced users.

Using Central Point BBS

The default phone directory file, PHONE.TEL, comes with the Central Point Software BBS already installed. The Central Point Software BBS is an online service provided for registered Central Point Software users and allows you to view product facts, access technical and sales information, download Central Point files (for program upgrades), and correspond with other Central Point Software users.

The Central Point Software BBS entry in the phone directory provides you with the ability to log on to the Central Point Software BBS. Once you are online, you interact directly with the Central Point Software BBS, which also supplies online Help.

The following instructions show you how to modify the Central Point Software BBS entry to include your User ID and password.

❑ **To edit Central Point Software BBS:**

1. Highlight Central Point Software BBS in the main Telecommunications window by either using the arrow keys, clicking Central Point Software BBS once with your mouse, or pressing 4.
2. Edit the Central Point Software BBS entry by pressing F6 or by choosing the Edit Entry command from the Edit pull down menu.

The Edit Phone Directory dialog box appears.

Edit Phone Directory																																							
NAME: Central Point BBS																																							
PHONE: (503)690-6650		SCRIPT: CPS.SCR																																					
USER ID:		PASSWORD:																																					
DATABASE: C:\PCTOOLS\TELECOM.DBF																																							
FIELD 1: CPS.ID		FIELD 2:																																					
<table border="0"> <tr> <td>TERMINAL</td> <td>END-OF-LINE PROCESSING</td> <td>FLOW CONTROL</td> </tr> <tr> <td>() TTY</td> <td>RECEIVE SEND</td> <td>(*) XON/OFF</td> </tr> <tr> <td>(*) ANSI</td> <td>() ADD LF (*) STRIP LF</td> <td>() NONE</td> </tr> <tr> <td>() VT100</td> <td>() ADD CR () STRIP CR</td> <td></td> </tr> <tr> <td>() VT52</td> <td>(*) NONE () NONE</td> <td></td> </tr> </table>					TERMINAL	END-OF-LINE PROCESSING	FLOW CONTROL	() TTY	RECEIVE SEND	(*) XON/OFF	(*) ANSI	() ADD LF (*) STRIP LF	() NONE	() VT100	() ADD CR () STRIP CR		() VT52	(*) NONE () NONE																					
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		<div>ACCEPT</div> <div>CANCEL</div>																																					

3. Most of the fields are already set up. Use the TAB key or the mouse to select the field you want to edit. You will need to enter the following information (if this has not already been done by Install):

User ID: type in your User ID, which you selected when you logged on for the first time. This is used for identification when logging onto Central Point Software BBS.

Password: type the password that you typed in the first time you logged onto Central Point Software BBS. After the password is saved by selecting the Accept command button, the characters are replaced by solid squares to conceal the password.

4. Set Baud to match your modem and Central Point Software BBS's baud rate (for example, 2400).
5. Select the Accept command button.
The dialog box closes, your editing changes are saved, and you are returned to the Telecommunications window.

Note: *Your Central Point BBS User ID, your password, and the COM port your modem is attached to should have been entered during installation with Install. If you didn't enter this information at that time, you need to do it now. All of these entries appear in the Edit Phone Directory dialog box. We have already included the Central Point BBS access phone number.*

□ Using TELECOM.DBF with Central Point Software BBS:

Note: *You do not have to use TELECOM.DBF to use Central Point Software's BBS with Modem Telecommunication; this is an optional feature.*

You can use TELECOM.DBF with Central Point BBS to store and make use of the IDs of other Central Point Software BBS users who you plan to send mail to. Before you send mail using Central Point BBS, use the following procedure to enter information into this database.

1. Choose Databases from the Desktop pull-down menu.
Select TELECOM.DBF from the directory where you have PC Tools Desktop installed.
2. The phonebook database appears.

This database has fields to hold information for multiple online services per entry. The field important for Central Point BBS is:

CPS_ID: Central Point Software BBS User ID of the person you want to send mail to.

After you have finished editing the database, save your changes by pressing F3 or clicking on Exit on the Message Bar. This takes you back to the Telecommunications window.

□ To connect to Central Point Software BBS:

Now you are ready to call Central Point Software BBS and use their services:

1. Select the Central Point Software BBS entry pressing 4 and then ENTER or by double-clicking with the mouse on the Central Point Software BBS entry.

This dials the Central Point Software BBS phone number.

After the Central Point Software BBS phone number has been dialed, the Telecommunications online screen appears and communication is under the control of the Central Point Software BBS script file, CPS.SCR. You do not need to be concerned about the script file to use Central Point Software BBS.

2. After you have successfully logged on, you will be at Central Point Software's BBS command mode.

Central Point Software BBS Command Mode

1. You are prompted to choose the service you want to use. Choose one of the following services by entering its corresponding number:

(1) Central Point Software Inc.: allows you to read information about Central Point Software products.

(2) Technical Information: provides a variety of technical information related to Central Point Software products.

(3) Sales Information: provides a variety of sales and user registration information.

(4) Download Files: allows you to download files for program upgrades.

(5) BBS Information: allows you to check on which users are online and conduct multi-user teleconferencing.

(6) Leave a Message: allows you to leave messages for our technical support staff as well as send messages to other Central Point Software users.

(7) Read a Message: allows you to read messages sent to you.

(X) Exit the System: allows you to log off from Central Point Software BBS.

2. After you choose one of the options, just follow the instructions on the screen.

Editing PHONE.TEL

If you need to change any information in an existing entry, create a new entry, or remove an entry, follow the steps outlined on the following pages:

Edit Phone Directory

NAME: Tony Hazarian

PHONE: (503)555-1212

USER ID:

DATABASE: C:\PCTOOLS\TELECOM.DBF

FIELD 1: FAX

SCRIPT: HAZ.SCR

PASSWORD:

FIELD 2:

TERMINAL

END-OF-LINE PROCESSING

FLOW CONTROL

() TTY

RECEIVE

SEND

(*) XON/OFF

(*) ANSI

() ADD LF

(*) STRIP LF

() NONE

() VT100

() ADD CR

() STRIP CR

() VT52

(*) NONE

() NONE

BAUD

PARITY

DATA-BITS

STOP-BITS

DUPLEX

() 300

(*) NONE

() SEVEN

(*) ONE

(*) FULL

(*) 1200

() ODD

(*) EIGHT

() TWO

() HALF

() 2400

() EVEN

() 4800

() SPACE

() 9600

() MARK

() 19200

ACCEPT

CANCEL

❑ To edit an existing entry:

1. Highlight the entry you want to edit in the Telecommunications window.
2. Choose Edit entry from the Edit menu, press F6, or click on the Edit command on the Message Bar. The Edit Phone Directory dialog box appears.
3. Select any of the following and type in the necessary information:

Name: type the name of a person, a company, or a computer service. The field may contain as many as 50 characters.

Phone: type a phone number and any additional commands used by your modem to control the phone dialing. Modem Telecommunications ignores spaces, dashes, and parentheses, so you can type a phone number as you normally would: (800) 555-9978. This field may contain as many as 25 characters. Leave the Phone entry blank if you want to set up the communications settings only.

Script: type the file name and .SCR extension for your script file containing commands for automated procedures. In PC Tools Desktop, script files can be used to log onto a system, read the electronic mail, and download or upload a file.

User ID: used to identify yourself when logging onto an electronic bulletin board such as CompuServe, or when using a fax service such as EasyLink. A User ID is generally defined through an online service. You can enter up to 25 characters. (Modem Telecommunications differentiates between uppercase and lowercase.)

Password: used to restrict access so only you and others who know your password can access a bulletin board or use an electronic mail service or fax service such as MCI Mail or EasyLink. Enter up to 21 characters in the Password entry. (Modem Telecommunications differentiates between upper and lower case.) After the password is saved by selecting the Accept command button, the characters are replaced by solid squares to conceal the password. To change the password, simply type in a new password and select the Accept command button.

Database: enter the path and name of a database file that contains fields of data you would like to send, such as a phone number or fax number. If you do not want to use information from a database, enter nothing in this field. If you wanted to use database file TELECOM.DBF in the PCTOOLS directory located on your C drive, you would enter C:\PCTOOLS\TELECOM.DBF in this field.

Field 1/Field 2: used in conjunction with the DATABASE script parameter. You can enter the names of two fields in the database listed in the Database text box that contain data you would like to send, such as a name or fax number. For example, if the fields NAME and FAX in TELECOM.DBF contain the name and fax number of someone you want to send faxes to, you would enter NAME and FAX in the Field edit boxes.

Terminal: shows that Modem Telecommunications has the following emulation modes: TTY (used most frequently by information services and electronic bulletin boards), ANSI (used on electronic bulletin boards for ASCII extended character sets such as graphics, color, and animation), VT100

(emulates DEC's VT100 terminal), and VT52 (emulates DEC's VT52 terminal).

End-Of-Line: selects the characters used to mark the end of the line when you press ENTER and on ASCII transfers. Check the manual that came with your subscription service for the correct setting. The defaults are set for normal bulletin board communications. UNIX systems use a line feed (LF) only.

Receive:

Add LF: the sending computer system uses a CR (carriage return) only to mark the end of a line. Modem Telecommunications adds an LF (line feed) for incoming transmissions.

Add CR: the sending computer system uses an LF only to mark the end of a line. Modem Telecommunications adds a CR for incoming transmissions.

None: the sending computer system uses CR/LF to mark the end of a line and does not modify the data.

Send:

Strip LF: the receiving computer system expects CR only to mark the end of a line. Modem Telecommunications removes the LF for outgoing transmissions.

Strip CR: the receiving computer system expects LF only to mark the end of a line. Modem Telecommunications removes the CR for outgoing transmissions, and the ENTER key sends LF.

None: the receiving computer system expects CR/LF to mark the end of a line. Because Modem Telecommunications sends CR/LF, no character deletion is needed; the ENTER key sends a CR.

Flow Control: controls the flow of data between two computers with less chance of data loss. This setting is needed when one of the computers needs time to accept a file from the other. When the receiving computer sends an XOFF character (transmission off), the sending computer stops transmission. The sender does not restart transmission until the sender sends an XON character (transmission on). This setting must match on both computers. Check the manual

you received with your computer service subscription for the correct setting.

XON/OFF: helps buffer data flow between two computers.

None: data is buffered somewhat, but there is more chance to lose data.

Baud: selects the speed at which the transmission takes place. The higher the number, the faster the transmission. The number must be less than or equal to the manufacturer's rated speed for the modem you are using and must match the system you are calling.

PDS: defines the way characters will be transferred. If both systems do not have the same PDS settings, either nothing or nonsensical characters are transferred. The three components of PDS are parity, data bits, and stop bits.

Parity(P): used sometimes to help achieve correct communication. A parity bit usually takes the place of the eighth data bit and will make the sum of each character's bits come out even or odd. Even parity makes the sum of the character's bits come out even, while odd parity makes the sum of a character's bits come out odd.

If the receiving computer adds up the bits and gets an unexpected number, then the character was transmitted incorrectly. Parity must match the requirements of the remote computer. The most common settings are none or even.

Data Bits (D): selects the number of actual data bits (7 or 8) in a transmitted character. The number value depends on the requirements of the remote computer. Most systems use 8.

Stop Bit (S): selects the number of bits (1 or 2) used to indicate the end of a character. The selection depends on the requirements of the remote computer. Most systems use 1.

Duplex: selects which type of setting is used to transmit data. A full-duplex setting transmits data simultaneously in two directions, with the remote computer echoing back any characters sent to it. A half setting transmits in one direction,

causing each character to be displayed as you type. If you can't see what you are typing, change the setting to half. If you see two of every character, change the setting to full. Most systems are full-duplex.

4. Select the Accept command button.
The dialog box closes, your editing changes are saved, and you return to the Telecommunications window.

Note: *The preceding transmission parameters for the phone directory entries we have provided are set to default values that you may have to change to match your computer and modem.*

To create a new entry:

If you subscribe to another service and want to add it to the PHONE.TEL phone directory, follow the steps below.

For example, let's say you want to use the telecommunications service GENie. You would begin by entering the correct GENie phone number, your User ID, and your password in the Edit Phone Directory dialog box. You should also check that all of the other parameters in the Edit Phone Directory dialog box are correct. In addition, you can write a script to automate procedures for you. The script name also needs to be entered in the Edit Phone Directory dialog box. For information on writing script files, see the section "Writing Script Files" later in this chapter.

You can also integrate the use of a database to automatically send electronic mail or faxes to an individual or company in the database. (These features are described in the preceding examples.)

1. Choose Create New Entry from the Edit menu.

The Edit Phone Directory dialog box is displayed with the default values selected to give you an opportunity to change any settings.

2. Select the options you want to change.
3. Select Accept.
The dialog box goes away and your new entry appears selected in the phone directory window.

Note: *If a message appears telling you there is no more room (your file has more than 60 entries), you need to either remove some existing entries that you no longer use or add the entries to an alternate phone directory.*

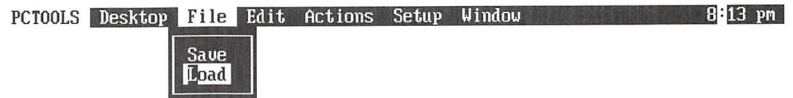
❑ To remove an entry:

If you decide you want to eliminate a number from your phone directory, you can use the Remove Entry command.

1. Select the entry you want to permanently remove.
2. Choose Remove Entry from the Edit menu.
A message box appears asking you to confirm that you want to delete the entry.

Creating a New Phone Directory

There may be a point when you want to create a different phone directory to put certain phone numbers in. By using Modem Telecommunications, you can keep track of names and phone numbers in one or multiple phone directory files. For example, you could have one directory for work related numbers and another directory for stock related numbers. Each directory can have as many as 60 entries. The File pull-down menu provides a list of commands for working with your phone directory files.



❑ To create a new phone directory:

1. Load PC Tools Desktop's Modem Telecommunications program and choose Load from the File menu.
The File Load dialog box appears containing the names of the existing files, drives, and directories. Enter a name for your new directory, for example, WORK.TEL, and choose the New command button. An empty phone directory will appear on your screen.
2. At this point, you can start building your new directory. Pull down the Edit menu and select Create New Entry. The Edit Phone Directory window appears with blank entries. Provide the necessary information. For information about using the File Load dialog box, see "File Load Dialog Box" in the *About PC Tools Desktop* chapter.

Saving Phone Directory Files

Phone directories are automatically saved when you press ESC or click on the close box if a change was made. In addition you can save a file using the Save command from the File menu or Message Bar.



❑ To save a phone directory:

1. Choose Save from the File menu.
The Save File to Disk dialog box appears with the name of the current file in the Filename text box. If you want to save your changes to a different phone directory, or keep different versions of the phone directory, you may enter a new name in the filename text box.
2. Select the Save command button.

Loading an Existing Phone Directory

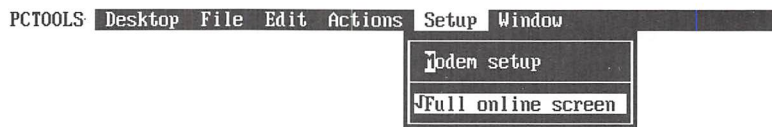
When you load a Modem Telecommunications file using the Load command, any Telecommunication files currently open are replaced by the file you are loading. Any changes made to the current directory are lost when you load another file, so be sure to save changes to your file before opening another one.

❑ To load a phone directory:

- Choose Load from the File menu.
The File Load dialog box appears containing the names of the existing files, drives, and directories. For information about using the File Load dialog box, see the *About PC Tools Desktop* chapter.

Full Online Screen

When this option is turned on (indicated by a check mark), you will have 24 display lines on your screen. When it is off, you will have 22 lines; the bottom two lines of the screen will be used to display helpful information and shortcut keys.



Dialing Numbers Manually

With PC Tools Desktop Modem Telecommunications, you can dial a phone number yourself by typing in the numbers using the keyboard, or you can let the computer do it automatically.

Your modem should be configured so that Data Carrier Detect (DCD or CD) and Data Set Ready (DSR) reflect the actual state of the carrier

detect and DSR signals. Some modem manufacturers refer to this state as “True carrier detect” and “True DSR.”

Note: Do not use the settings “Carrier detect always on” or “DSR always on.” Consult your modem owner’s manual for information on configuring your modem. In addition, be aware that some older modems do not allow the DSR bit to change. Instead, change the DTR bit to an “always true” state.

If a connection cannot be made, a message is displayed on the Message Bar indicating the reason. For example, the Hayes Smartmodem displays “no carrier” if the connection cannot be made. See the manual that came with your modem for any messages your modem may display.

Make sure your Hayes-compatible modem is connected and turned on before trying to dial a number.

❑ To dial a number:

1. Select the entry you want to call.
2. Choose Dial from the Actions menu.

or

Press ENTER to dial the phone number automatically.

or

Double-click on the entry.

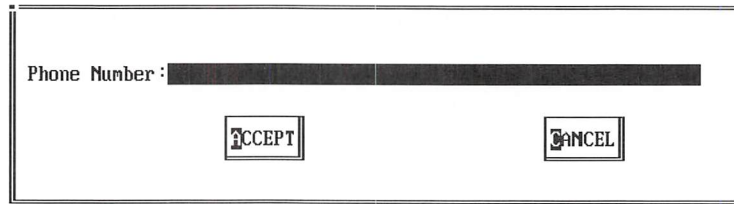
or

Click on the Dial command in the Message Bar or press F7.

or

Type the number displayed to the left of the entry you want to dial and press ENTER.

Note: If the phone number of the selected entry is blank, the following dialog box appears to prompt you for the phone number to dial.



When the connection is made, the remote computer will send you questions or commands so you can send or receive files. You can type your responses, and your keystrokes will be transmitted to the remote computer. If you have included a script file, it will be executed after the connection is completed.

Note: If you need to send `ESC` to the other computer, press `SHIFT - ESC` because `ESC` sends you to the previous window.

Dialing Numbers Online:

You can choose to dial the phone manually if you do not want to use the included entries, or if you want to use a different phone number without changing the parameters you've already selected. Another reason for dialing manually is if you don't have a Hayes-compatible modem attached. If you are directly connected to another computer without using a modem, you should also use the manual dial.

❑ To manually dial a number:

1. Select an entry that has the transmissions parameters you want.
2. Choose Manual from the Actions menu.

The online screen appears with the cursor positioned in the upper-left corner of the blank screen indicating you are online. The horizontal menu bar displays pull-down menus for choosing actions online, receiving files, and sending files.

The bottom line contains shortcut keys as well as information about your current configuration.

3. Type the appropriate dialing sequence described in your modem manual.
If you are using a Hayes modem, for example, you type ATDT (AT gets the modem's attention; D is for dial, T is for tone) then the phone number.

When the connection is made, the remote computer will send you questions or commands so you can send or receive files. You can type your responses, and your keystrokes will be transmitted to the remote computer.

Terminal Emulation

ALT-ESC

Alt-Esc appears on the far right of the top menu bar. It is primarily for support of VT100 and VT52 terminal emulation. It can be on or off, as indicated on the far right of the top menu bar. Each time ALT-ESC is pressed, it changes state. When turned on, the ESC and function keys behave differently than they normally function within PC Tools Desktop, as indicated in the following table:

Key Press	Alt-Esc On	Alt-Esc Off
ESC	Sends Esc to modem	Exits to Telecommunications main (offline) screen
Function key functions	Sends Esc sequences to modem	Normal PC Tools Desktop
SHIFT-ESC	Exits to Telecommunications main (offline) screen	Sends Esc to modem
SHIFT-function key	Normal PC Tools Desktop functions	Sends Esc sequences to modem

Alt-Esc is turned OFF by default in TTY and ANSI mode, and ON by default in VT100 and VT52 mode, thus allowing VT100 and VT52 keys to be mapped to the function and ESC keys. VT100 and VT52 keys are mapped as follows:

VT100, VT52 Key	Press
PF1	F1
PF2	F2
PF3	F3
PF4	F4
Break	CTRL-END
Esc	ESC
Exit PC Tools Desktop Telecommunications	SHIFT-ESC

Hangup Phone

To end a communications session and disconnect your modem from the phone line, you need to use the Hangup Phone command. Be sure to log off the remote computer before issuing this command. You can also hang up before ever going online.

- Choose Hangup Phone from the Actions menu.
You will end the session and go back to the phone directory window.

***Note:** You can also hang up the phone while it is dialing by pressing the ESC key to cancel.*

End Transfer

You may decide you want to end the transfer (send or receive) of a particular file, but want to stay connected to the remote computer for receiving another file.

- Choose End Transfer from the Actions menu.
You remain connected to the remote computer, but the current file transfer ends.

***Note:** When using the ASCII protocol to receive files, you must use the End Transfer command to inform Modem Telecommunications of the end of the file transfer.*

Receiving Files

With Modem Telecommunications, you can receive, or download, files from a remote computer and save them to disk. Receiving files involves calling another computer and instructing the other system to send files. For example, you can download a program from a service like CompuServe or download spreadsheet data from your company's mainframe computer.

To receive files, you need to make sure to use the same protocol as the remote computer. A communications protocol is a set of rules, like an etiquette, that specifies how files are to be exchanged. From the Receive menu, you can choose either of the following protocols:

- ASCII
- XMODEM

The ASCII protocol is generally used when you need to transfer text files between computers. You may also use ASCII receive to retain a record of anything that prints on your screen during a communications session. Such tasks as sending or receiving electronic mail or transferring text files to other computer systems are usually done with the ASCII protocol. When receiving (downloading) a file, you must prompt your computer by giving it the file name it is to receive.

ASCII is not an error-free protocol, which means this protocol does not check for errors caused by interference in the phone lines. Therefore, you should use XMODEM if it is critical that no errors are received in the document. The ASCII receive can also be used to create a log of all data received from the remote computer while you are connected.

To set the ASCII protocol:

1. Set up the remote computer for the ASCII file transfer. Select the phone directory entry you want to call, dial the number, and establish connection. The remote computer will begin sending you questions or menus from which to choose commands. Answer the questions or type the commands.

When you register with a computer service, you will receive a manual explaining the procedure used to set up with the service. In addition, most bulletin board systems have online help the first time you log on.

2. Choose ASCII from the Receive menu or press F6. The Save dialog box appears.
3. Type the name of the file to be received in the Filename text box.
Give the file a name and extension that's logical to you.

4. Select Save to capture the file and save it.
As the file transfer takes place, the information in the file appears on the screen.
5. Choose End Transfer from the Actions menu when the transfer is complete.

***Note:** You may cancel an ASCII transfer at any time by choosing the End Transfer command from the Actions menu or by pressing ESC.*

XMODEM is the most universal microcomputer protocol. It contains mechanisms to check for errors caused by interference in the transfer, like static in the phone lines. Although it is slower than ASCII, it is more accurate, so use XMODEM to capture applications files.

❑ To set the XMODEM protocol:

1. Set up the remote computer for an XMODEM download. Select the phone directory entry you want to call, dial the number, and establish connection. The remote computer will begin sending you questions or menus from which to choose commands. Answer the questions or type the commands.

When you register with a computer service, you will receive a manual explaining the procedure used to set up with the service. In addition, most bulletin board systems have online help the first time you log on.

2. Choose XMODEM from the Receive menu or press F7.
The Save dialog box appears.
3. Type the name of the file in the Filename text box.
Give the file a name and extension that's logical to you.
4. Select Save to capture the file and save it.
As the file transfer takes place, the Receive box below appears telling you how much time has elapsed, how many bytes have been transferred, and how many errors have occurred.

You may cancel the transfer at any time by choosing the End Transfer command from the Actions menu or by pressing the ESC key.

Protocol:	XMODEM
Filename:	recd.tel
Elapsed time:	
Bytes transferred:	
Error checking:	CRC-16
Error count:	
Last message:	Waiting for Sender

The information in the Receive box is explained below:

Protocol: shows that XMODEM protocol is being used for the file transfer.

File Name: shows the name you've typed in the Filename text box.

Elapsed Time: shows how many minutes and seconds have elapsed while the file is transferred.

Bytes Transferred: shows how many characters have been transferred so far.

Error Checking: shows the method of checking for errors the program performs. Since noise and static can cause problems when transferring files over telephone lines, Modem Telecommunications performs two kinds of error checking: Checksum and CRC. The program automatically chooses which method is being used by the remote computer.

Error Count: shows the number of errors transmitted in a block of data. If you notice a large number of errors during a file transfer, you could cancel the transfer and call back to try again. You may have a noisy phone line, and 10 errors on one block causes XMODEM to terminate early.

Last Message: provides messages during the file transfer.

Sending Files

With Modem Telecommunications, you can send files to a remote computer. For example, you can upload a personal sales report from your PC to the mainframe computer at your company's headquarters. In order to send files from your computer, you need to make sure to use the same protocol as the remote computer. From the Send menu, you can choose either of the following protocols:

- ASCII
- XMODEM

Use ASCII to send text files to a system that doesn't support any other protocol. ASCII is not an error-free protocol, which means this protocol does not check for errors caused by interference in the phone lines, so static, for example, displays nonsensical characters on your screen. If you want to send large files or application programs like spreadsheets or databases, you should use XMODEM.

❑ To send files with the ASCII protocol:

1. Set up the remote computer for an ASCII upload.
Select the phone directory entry you want to call, dial the number, and establish connection. The remote computer will begin sending you questions or menus from which to choose commands. Answer the questions or type the commands.

When you register with a computer service, you will receive a manual explaining the procedure used to set up with the service. In addition, most bulletin board systems have online help the first time you log on.

2. Choose ASCII from the Send menu or press F4.
The File Load dialog box appears. See the *About PC Tools Desktop* chapter for instructions on using the File Load dialog box.
3. Select the file you want to send from the list box.
4. Select Load to send the file.
The file's contents appear on the screen as the file is transferred.

The XMODEM method of file transfer allows dissimilar computer systems to exchange files. Call the computer system to which you are transferring files and instruct the other system to receive the file.

❑ To send files with the XMODEM protocol:

1. Set up the remote computer for an XMODEM upload.
Select the phone directory entry you want to call, dial the number, and establish connection. The remote computer will begin sending you questions or menus from which to choose commands. Answer the questions or type the commands.

When you register with a computer service, you will receive a manual explaining the procedure used to set up with the

service. In addition, most bulletin board systems have online help the first time you log on.

2. Choose XMODEM from the Send menu or press F5. The File Load dialog box appears. See the *About PC Tools Desktop* chapter for instructions on using the File Load dialog box.
3. Select the file you want to send from the list box.
4. Select Load to send the file. The Send box below appears telling you how much time has elapsed, how many bytes have been transferred, and how many errors have occurred.

Protocol:	XMODEM
Filename:	recd.tel
Elapsed time:	
Bytes transferred:	
Error checking:	CRC-16
Error count:	
Last message:	Waiting for Sender

The information in the Send box is explained below:

Protocol: shows which protocol is being used for the file transfer, in this case, XMODEM.

File Name: shows the name of the file you've selected from the File Load dialog box.

Elapsed Time: shows how many minutes and seconds have elapsed while the file is transferred.

Bytes Transferred: shows how many characters have been transferred.

Error Checking: shows the method of checking for errors being used by the remote computer.

Error Count: shows the number of errors transmitted in a block of data. If you notice a large number of errors during a file transfer, you may want to cancel the transfer by choosing End Transfer from the Actions menu. Ten errors on a signal block will automatically end the transfer. This may indicate a noisy phone line, and you may want to try again after hanging up and redialing.

Last Message: provides messages during the file transfer.

Automating Communications

In using Modem Telecommunications services, you will often find yourself entering the same information session after session. For example, when you connect your PC to larger computers, you generally go through an identical log-in procedure to identify yourself to the other computer.

To automate such tasks, Modem Telecommunications provides you with a simple programming language that creates communications scripts that your PC carries out. Using the script feature, you can program your PC to automatically log in, check your mail, and issue any other commands you want to perform at the start of each session. Whenever you choose an entry and a connection is established, the script that is associated with it runs.

Modem Telecommunications provides you with four script files that correspond to the five phone directory entries in the default phone directory, PHONE.TEL. For example, if you look at the phone directory on your computer screen, you can see that the script file MCI.SCR is listed for the phone directory entry MCI Mail. That means that this script will automatically run if you dial the MCI phone number. If you want to use a new script for an online service, you would have to enter the new script name in the Edit Phone Directory dialog box for that entry.

This section shows you the commands used for writing script files and how to use script files in PC Tools Desktop Modem Telecommunications. The *Appointment Scheduler* chapter also explains how you can set an alarm to run a macro for automating communications.

Writing Script Files

Since Modem Telecommunications scripts are text files, you can create them using a word processor, such as Notepads. PC Tools Desktop supplies you with script files with the .SCR extension, but you can create and save your own using Notepads.

The following commands are used for writing your own script files to perform actions after you are connected with the other computer. Commands can be written in uppercase or lowercase letters.

RECEIVE variable

The RECEIVE command captures a character string sent from the remote computer and stores it in a variable for use later in your script. The character string can be up to 80 characters

long and is ended at the first carriage return or line feed received. If nothing is received within 10 seconds, the variable is set to null.

You can designate up to three different character strings to be placed into the variables the script function uses: v1, v2, or v3. For example, if you placed RECEIVE at the start of your script, the initial prompt issued by the remote computer is saved in a variable name. You could then use this variable later in your script.

SEND variable
SEND "string"
SEND USER ID
SEND PASSWORD

The SEND command enables you to send a message to the remote computer. You can send either variables (v1, v2, or v3) or character strings, and the message is followed by a carriage return to indicate the end of the message. For example, if you used an INPUT v2 command previously, the script would send what you typed in to the remote computer. The SEND command also recognizes the User ID and Password parameters. Thus, you can type:

```
SEND USERID
```

or

```
SEND PASSWORD
```

in your script rather than having to place User ID or Password in a variable or quote string. Modem Telecommunications recognizes the User ID and Password entries you included in the Edit Phone Directory dialog box and applies them when a script file is processed.

Character strings must be enclosed in quotation marks ("name"), and can include the ^ character to indicate a control character. For example, ^C sends CTRL - C. To produce a quote within a string, you need to type ^".

You can optionally follow the SEND command with a semicolon (;) to indicate that you do not want to send a carriage return character at the end of the line.

As an example, the menu on a local bulletin board system may use single-letter commands for choosing operations (such as "D" for downloading files) and may not require that you press `ENTER` after the command letter. The following script shows you how to send the D command without also sending the return character:

```
WAITFOR "Enter choice (ABCDE)"
```

```
SEND "D";
```

WAITFOR "string"

The **WAITFOR** command halts execution of the script until the specified string is issued by the remote computer. The **WAITFOR** command ignores case (upper or lower) of the data received.

INPUT variable

The **INPUT** command stores up to 80 characters from the keyboard ending with a return or line feed, and places them in the v1, v2, or v3 variable.

DATABASE variable

The **DATABASE** command combined with the v1 and v2 variables allows you to send the contents of up to two specified fields in a PC Tools Desktop Database. This works in conjunction with the Database and Field parameters in the Edit Phone Directory dialog box.

For example, if you had **DATABASE v1 v2** in your script and `C:\PCTOOLS\REP.DBF` in the MCI Mail phone entry for the Database parameter and entered `MCI_ID` for the Field 1 parameter and `FAX` for the Field 2 parameter, Modem Telecommunications will scan the path, then locate and open the database file you specified (`REP.DBF`). At this point you need to select the record that contains the fields (`MCI_ID`, `FAX`) you want to send. After you select the proper record, Modem Telecommunications will place the contents of the two specified fields in their respective variable.

Field 1 contents are always stored in v1; Field 2 contents are always stored in v2. The valid **DATABASE** commands are:

DATABASE v1 v2 Field 1 and Field 2

DATABASE v1 Field 1 only

DATABASE v2 Field 2 only

If you only want to send one field entry, just leave out one of the variables in the script command. For example, if you were sending electronic mail using the MCI Mail phone entry and only wanted to include MCI_ID (Field 1), you would type:

DATABASE v1

If you want Modem Telecommunications to send a different name and number, you can press ESC instead of selecting a database record, when the database is activated. This closes the database file and returns you online to a ? prompt for you to manually enter a name or number. What you type is placed into the appropriate variable.

BACKTALK

The BACKTALK command tells Modem Telecommunications to run the rest of script commands in the background. This means that your computer can perform Modem Telecommunications functions while you are working in another application such as PC Shell, dBase, or Lotus 1-2-3.

You must have installed BACKTALK.EXE (discussed later in this chapter) before this script command will work.

Keep in mind the following points when using the BACKTALK script command:

- Script commands that require user input (INPUT and DATABASE) must appear in the script *before* BACKTALK. The INPUT and DATABASE script commands will be ignored if you don't put them before BACKTALK in your script.
- The PRINT and ECHO script commands will also be ignored if they appear in the script after the BACKTALK script command.

- All other Modem Telecommunications script commands will operate normally no matter where BACKTALK appears in the script.

PRINT variable or "string"

The PRINT command displays the value of the specified variable or the character string on the screen.

You can optionally follow the PRINT command with a semicolon (;) to indicate that you do not want to send a return character at the end of the line.

The next example shows a script that enables you to type a file name (which is in v1) from the keyboard and then displays "Now sending file name to the office".

```
PRINT "Enter filename";  
  
INPUT v1  
  
PRINT "Now sending ";  
  
PRINT v1;  
  
PRINT "to the office"
```

The screen appears as follows:

Enter filename? C:\MYFILE

Now sending C:\MYFILE to the office

:label

The :label command marks a particular place in a script file for future reference and is used with the GOTO or IF statements so you can easily move from place to place in your script file. Only the first eight characters of a label are used.

GOTO label

The GOTO command enables you to change the flow of your script to another line starting with ":label."

IF variable [= | <> | CONTAINS] string GOTO label

The IF command is a decision-making command that changes the flow of your script and goes to the line starting with :label

if the variable either equals or doesn't equal the string or if the string is contained within the variable. An example is:

```
IF v1 contains "download" GOTO download
```

If your script contains the following statement, when the computer detects "download" anywhere within variable 1, it looks for the label "download" and continues.

* any comment

The * is used to mark a message that the computer won't recognize as a command. Use * messages to remind you what the script file is doing.

DOWNLOAD protocol "file name"

DOWNLOAD protocol variable

This command tells Modem Telecommunications to receive a file from the remote system. The protocol can be ASCII or XMODEM. If the specified file already exists, it will be deleted before receiving the new file.

***Note:** Before you use this command in a script, the script must contain commands to tell the remote system to download a file using the same protocol as the DOWNLOAD command, and the remote system must be ready to send the file.*

The following example script will receive the file C:\BUDGET\MONTH.END using the XMODEM protocol:

```
DOWNLOAD XMODEM "C:\BUDGET\MONTH.END"
```

The following example script will receive the file whose name has been stored in the variable V1 using the XMODEM protocol:

```
DOWNLOAD XMODEM V1
```

For example, after responding to the prompts to do an ASCII download, a single Return often tells the remote system to begin transferring. If the remote system always displays the message "***TRANSFER COMPLETE***" upon completion, you can use the following script segment to receive the file:

DOWNLOAD ASCII "C\MYFILE" *Name to be received

SEND "^M"; *Return to start transfer

WAITFOR "*** TRANSFER" *String when done

UPLOAD protocol "filename"

UPLOAD protocol variable

This command tells Modem Telecommunications to begin sending a file to the remote system. If the specified file does not exist, the script cancels the upload operation but continues with the script. The protocol may be either XMODEM or ASCII.

***Note:** Before you use this command in a script, the script must contain commands to tell the remote system to upload a file using the same protocol as the UPLOAD command, and the remote system must be ready to receive the file.*

The following example script will send the file C:\MEMOS\TODAYS.NWS using the XMODEM protocol:

UPLOAD XMODEM "C:\MEMOS\TODAYS.NWS"

The following example will send the file whose name has been stored in the variable V2 using the ASCII protocol:

UPLOAD ASCII V2

HANGUP

This command hangs up the phone, or disconnects the file transfer, if you are doing an unattended file transfer, so that you won't have to worry about accumulating a large telephone charge.

PAUSE

PAUSE number

This command pauses execution of a script for a specified number of seconds. Using PAUSE without a specified number pauses for one second.

The following example script prints a message on the screen and pauses five seconds for you to read it:

PRINT "You are now connected. . ."

PAUSE 5

The following commands can be used to help you find errors in script files and should be removed from the script after you have written and tested it.

ECHO

The ECHO command alternately turns on or turns off the display of characters received from the remote computer. The display can be turned on with the command ECHO ON. It can be turned off with the command ECHO OFF. This can help if you are testing a new script or trying to determine why an existing script is not working properly. Used with TRON and TROFF, you can usually determine why a script does not work as expected.

TRON

The TRON command (Trace On) displays the commands in your script file on the Message Bar at the bottom of your screen. When the command is displayed, the script pauses until you press the SPACEBAR to execute the command. Pressing ESC cancels any further execution of the script. (TRON is ignored during background operation.)

TROFF

The TROFF command (Trace Off) executes the script command without pausing or displaying the scripts on the Message Bar. In effect, it turns off the TRON command. Using TRON and TROFF together enables you to trace through portions of a script that is giving you problems. (TROFF is ignored during background operation.)

Using Script Files

If you want to write your own script, you need to use either the Notepads application or another word processor, then save the file as you normally would. In Notepads, you can save files in ASCII or PC Tools Desktop format. You need to have your script files in the same subdirectory as your PC Tools Desktop program or PC Tools Desktop will not be able to find and run the script. If you receive the message "unable to open file" when trying to run a script, just move or copy the script file into the subdirectory.

We have supplied you with four script files for automating various standard procedures. The files are saved with the .SCR extension and include:

Script File	Online Service
MCI.SCR	MCI Mail — Sends fax, reads mail, sends electronic mail.
ESL.SCR	EasyLink — Sends fax, reads mail, sends electronic mail.
CIS.SCR	CompuServe — Sends fax, reads mail, sends electronic mail, logs onto PC Magazine section.
CPS.SCR	Central Point BBS — Sends electronic mail, reads electronic mail.

We have already listed these scripts in their corresponding phone directory so you can use them immediately. For example, in the phone directory for MCI Mail, the script name MCI.SCR appears in the Edit Phone Directory dialog box for the MCI Mail entry.

If you are using one of the script files we have provided, you don't need to change the entries in the Edit Phone Directory dialog box. However, if you write and save your own script files, you will need to either add or change the script entry.

To use a script file you have written:

1. Select the phone directory entry you want to add a script file to.
2. Choose Edit Entry from the Edit menu.
The Edit Phone Directory dialog box appears.
3. Select the Script File text box.
Type the file name and extension of the script file you want to run.
4. Select Accept once you have verified that all the other options are correctly selected.
The application window appears with the name of the script file added to the entry.

To run the script, dial the phone and make the connection.

Using Background Communications

PC Tools Desktop can perform computer communications while you are in an application program, such as dBase or Lotus 1-2-3. This means the communication takes place in the background without your involvement. You can set up your computer to send or receive a file, then load your application program and work while the file transfer takes place. The communication is unattended and requires no keyboard control. You can also use the BACKTALK script command to activate background communications from a script file.

You need to have installed the PC Tools Desktop background Modem Telecommunications option before attempting any background file transfers. This is a file called BACKTALK.EXE that must be in your AUTOEXEC.BAT file prior to loading PC Tools Desktop. If you installed PC Tools Desktop using the Install program, and you selected background communications at that time, this has already been done for you. If not, you can add BACKTALK.EXE to your AUTOEXEC.BAT file using Notepads or any other editor. BACKTALK.EXE takes approximately 64K of resident memory.

If you designated a COM port for your modem during Install, it will automatically be assigned for BACKTALK and added to your AUTOEXEC.BAT.

To change your setup manually, you may edit the BACKTALK command in your AUTOEXEC.BAT file. For example, if you want to use COM2, put the following in your AUTOEXEC.BAT file:

```
BACKTALK /2
```

No matter which COM port you have selected, you may use the other COM ports in foreground mode.

Note: Do not load or run any program in the foreground that uses the same serial port (COM1, COM2, etc) as is being used in the background or background communications may be interrupted.

TRANSFER.LOG File: Computer communications are not always completely reliable. For example, static on the phone lines can create communications errors. When you are using background communications, you will not be able to see if any transmission errors are occurring. To overcome this, Modem Telecommunications creates a TRANSFER.LOG file that is automatically created whenever you use background communications with the XMODEM protocol or within a script file with the BACKTALK script command to tell you whether you have successfully completed a file transfer. If the

transfer was not completed successfully, a line will have a message such as "Time Out," "Too many retries," or "CRC error."

TRANSFER.LOG is created every time you use background communications with XMODEM, so if you delete it after each time, it doesn't matter. You can view the contents of TRANSFER.LOG in Notepads.

❑ To transfer files in the background:

1. Start the file transfer.
2. Press ALT - B to enter background mode.

After pressing ALT - B, you will return to the main PC Tools Desktop menu or your underlying PC Tools Desktop application. You may continue to work in PC Tools Desktop or hotkey out to DOS and run other programs while the transfer continues unattended. When the transfer is complete, your PC will beep to alert you. Until this time, if you try to enter Modem Telecommunications again, you will be warned that it is busy transmitting a file.

Background Indicator: whenever you are using background communications, a blinking "B" in the upper-right corner of your screen will indicate that a background file transfer is taking place.

Sample MCI Script

Let's say you have to send a weekly report to a colleague in Chicago. You have a modem, but your colleague doesn't, so you use the online fax service MCI Mail to send the report to her office's fax machine. In this example, assume the weekly report you want to send is contained in the Notepads text file REP.TXT, while your colleague's name and fax number are contained in the MCI_ID and PHONE fields of your Databases file TELECOM.DBF.

The following table displays the MCI Mail script file you would use to automate this procedure. (This same script can also be used with other MCI online services.) Within the script are script commands that tell Modem Telecommunications to perform a variety of tasks, including opening the database file containing the fax number you want to send and sending the text file to MCI.

This example is exactly the same as the actual script file that we have provided you, MCI.SCR, except that the Send Electronic Mail and Read Electronic Mail portions have been left out, since we are focusing on the Send Fax feature.

You can use this script anytime you want to send a fax using MCI. (Make sure that the script file is in the same subdirectory as your PC Tools Desktop program or the script will not run.)

All of the actual script files we have included have comments that are marked by an asterisk. The comments tell you what the script file is doing.

Important: *If you use the BACKTALK variable in your script, place it after the INPUT or DATABASE variable. If you put BACKTALK before either one of these two variables, the script file will not execute the commands; instead they will be ignored.*

Script Command	What it Means
PRINT "CONNECTING TO MCI MAIL VIA TYMNET, PLEASE WAIT"; SEND " "	Connect to MCI Mail and send a return character (a return signals the remote computer that you are connected.)
SEND "A"; WAIT FOR "IN:" SEND "MCI MAIL"	Connect to Tymnet, a local access service that connects you to MCI Mail. (These script commands can be deleted if you are accessing MCI Mail directly.)
WAIT FOR "NAME:"	Wait until MCI Mail asks for your User ID.
SEND USER ID WAIT FOR PASSWORD	Send the User ID you defined in the Edit Phone directory dialog box, then wait until MCI Mail asks for your password.
SEND PASSWORD	Send the Password you defined in the Edit Phone Directory dialog box.

9. Modem Telecommunications

```
WAIT FOR "MCI"  
PRINT " "  
PRINT "LOGGED ON TO  
MCIMAIL...";  
WAIT FOR "COMMAND:"
```

Wait until MCI is sent, print
LOGGED ON TO MCI MAIL on the
screen, and then wait until
COMMAND is sent.

```
PRINT " "  
  
PRINT " "  
  
PRINT "MCI MAIL AUTOMATED  
SCRIPT"  
  
PRINT " "
```

Print MCI Automated Script.

```
PRINT "1 - PRINT READ  
ELECTRONIC MAIL"  
  
PRINT "2 - PRINT SEND  
ELECTRONIC MAIL"  
  
PRINT "3 - SEND ELECTRONIC  
FAX"  
  
PRINT "4 - EXIT SCRIPT,  
ENTER MCI COMMAND MODE"  
  
PRINT " "  
  
PRINT "ENTER SELECTION";
```

Print MCI Mail options 1-4, then
print Enter Selection to prompt you
to choose one of the four options (in
this example, we are assuming you
chose 3 to send a fax, but in reality,
you could choose any option).

```
INPUT V1
```

Enters the number you typed on the
screen (in this example, 3).

```
IF V1 CONTAINS "1" GOTO  
READMAIL
```

```
IF V1 CONTAINS "2" GO TO  
SENDMAIL
```

```
IF V1 CONTAINS "3" GOTO  
SENDFAX
```

```
IF V1 CONTAINS "4" GOTO LOGON
```

```
: SEND FAX  
PRINT "ENTER NAME AND THEN  
FAX NUMBER"
```

```
DATABASE V1 V2
```

```
PRINT V1  
PRINT " ";
```

```
PRINT V2
```

Go to the part of the script that corresponds to the option that you chose. (In this example, we'll assume you entered "3," which takes you to the Send Fax portion of the script.)

Print the message in quotes on the screen. In this example, the script is asking for the name and fax number of the person you are sending the fax to.

Pick the MCI ID and fax number you specified as database field entries for the MCI Mail entry in the phonebook and define them as variables that can be applied later in the script. The database these fields are contained in is opened so you can select the proper record.

Print the variable you first specified in the preceding script command. In this example, the variable is the MCI Id field entry (who you are sending the fax to) from the database file TELECOM.DBF.

Print the second variable you specified in the preceding script command. In this example, variable 2 is the FAX field entry (the number you are sending the fax to) from the database file TELECOM.DBF.

9. Modem Telecommunications

```
PRINT "ENTER PATH AND NAME  
OF FILE TO SEND";
```

Print the message in quotes on the screen. The semicolon indicates that you don't want to send a return character at the end of the line. This prompts you to enter the name of the file you want to send.

```
INPUT V3
```

Enter the path and name of the document (text file) you want to fax and store it as a variable for future use in the script. You need to manually enter this. For example, if you want to send REPORT.FAX and it is in your PCTOOLS directory on your C drive, you would type:
C:\PCTOOLS\REPORT.FAX.

```
PRINT "PREPARING TO SEND  
FAX ... "  
SEND " "  
WAIT FOR COMMAND:"  
SEND "CREATE"
```

(Prepare to send the fax.) Print the message in quotes. Wait for the MCI Mail Command prompt, send Create to tell MCI Mail you want to send a fax.

```
WAIT FOR "TO:"  
SEND V1;
```

Wait for MCI Mail to prompt for To: (who you are sending the fax to), then send the first variable you declared at the beginning of the script (in this example, the MCI ID of the person you are sending the fax to). This eliminates the need to type in the name.

```
SEND "(EMS) "  
WAIT FOR "EMS:"  
SEND "FAX"
```

Send EMS (Electronic Mail Service), wait for EMS, send Fax to tell MCI Mail that you are sending a Fax.

```
WAIT FOR "MBX"  
SEND "PHONE:";  
SEND V2
```

Wait for a special MCI Mail code, then send "Phone" to the screen and send the fax number automatically so you don't have to enter it.

Automatically answer some more questions about the fax transmission.

```
WAIT FOR "MBX"
SEND " "
WAIT FOR "(NO) ?"
SEND "Y"
WAIT FOR "TO: "
```

Automatically run the script in background mode for the rest of the script so you can go to another application while the script is running. (Make sure this command does not appear *before* the INPUT or DATABASE commands in a script, or they will be ignored.)

```
BACKTALK
```

Print "Now Sending" and the name of the file you are sending (v3), then print "To:" and the name of the person you are sending the file to.

```
ECHO OFF
PRINT " "
PRINT "NOW SENDING";
PRINT v3;
PRINT "TO: ";
PRINT v1
SEND " "
```

```
WAIT FOR "CC:"
SEND " "
WAIT FOR "SUBJECT:"
SEND "ELECTRONIC MAIL"
```

Automatically answer some more questions about the fax transmission.

```
WAIT FOR "END."
UPLoad ASCII v3
```

Wait for a special MCI Mail code, then send the fax with the ASCII REPORT.TXT was specified as v3 earlier in the script, so Modem Telecommunications knows to send that file.

```
SEND ""
SEND "/"

```

Send a special MCI Mail code that indicates the end of the fax.

9. Modem Telecommunications

```
WAIT FOR "HANDLING"  
SEND " "  
WAIT FOR SEND?"  
SEND "Y"  
WAIT FOR "COMMAND:"  
PRINT "FILE SUCCESSFULLY  
SENT"
```

Automatically answer more MCI Mail questions about the fax transmission.

```
SEND "EXIT"  
HANGUP  
PRINT " "  
PRINT "LOGGING OFF MCI  
MAIL"
```

Tell MCI Mail you want to logoff and hang up to end the transmission, then print "Logging Off MCI Mail" on the screen. You are then automatically returned to the Modem Telecommunications main screen.

10. Fax Telecommunications

Using a Fax Board

With a fax board and Fax Telecommunications, you can send text files directly from your computer to a facsimile machine or to another computer with a fax board. You can tell Fax Telecommunications who and where you want the fax to be sent, create a fax in PC Tools Desktop's Notepads application, create a cover page to accompany your fax, and set a date and time to actually send the fax.

PC Tools Desktop Fax Telecommunications is compatible with the following fax boards:

- Connection CoProcessor (Intel Corp.)
- SpectraFax (SpectraFax Corp.)

Anyone working on a Novell network with a fax board installed in any computer in the network can send faxes using that fax board, as well as access the Fax Log to check on the status of files that have been sent and received.

Fax Telecommunications keeps a directory of the faxes you create (up to 99 entries), so you can easily re-use them at a later time or delete them.

Faxes are sent and received in the background. As soon as you have sent the fax, you can run another application, in or out of PC Tools Desktop.

Installation

Depending on whether you will be using a fax board on a Novell network or on your personal computer, follow one of the installation procedures below.

To install when on a network:

1. If you have not already done so, install the fax board in a machine on the network. The board cannot be installed in a network server. Also install the software that came with your fax board in the same machine. Refer to your fax board manuals for more information on this procedure.

2. Create a directory on the network to which all network users who use PC Tools Desktop to send and receive faxes will have complete access privileges. This directory will be used by PC Tools Desktop to hold faxes before they are actually sent by the fax board software.
3. On the machine where the fax board is installed, install ITLFAX.EXE with the following parameter:

SHARE = directory

where "directory" is the directory that you created in step 2. This program serves as a communication link between the fax board software and PC Tools Desktop. For example:

ITLFAX SHARE = H:\PCTOOLS\PCTFAX

Ideally, you should have both the fax board software and ITLFAX.EXE installed in the AUTOEXEC.BAT file on the machine where the fax board is installed.

4. Install PC Tools Desktop using Install. If you have already run Install, you can run it again, selecting option 2 on the main menu. You will eventually be asked to supply the name of the directory you created in step 2 above. This will install the directory name in Fax Telecommunications for users on the network who use PC Tools Desktop from the network-installed PC Tools Desktop.

❑ To install when not on a network:

1. If you have not already done so, install the fax board in your personal computer, along with the software that came with it. Refer to your fax board manuals for more information on this procedure.

The next two steps can be performed by running Install. If you have already run Install, you can run it again to install fax board support.

2. Create a directory that can be used by Fax Telecommunications to hold faxes before they are actually sent by the fax board software.
3. Install ITLFAX.EXE using the following parameter:

SHARE = directory

where “directory” is the directory that you created in step 2. This program serves as a communication link between the fax board software and PC Tools Desktop. For example:

```
ITLFAX SHARE = C:\PCTOOLS\PCTFAX
```

Ideally, you should have both the fax board software and ITLFAX.EXE installed in your AUTOEXEC.BAT file.

Configuring Fax Telecommunications

Before sending a fax, you need to configure Fax Telecommunications with some basic information such as defining the directory where the faxes are sent to, whether you want to send cover pages with your faxes, time format, and who the faxes are being sent from. This is a simple procedure and will save you time later when you are actually sending faxes.

❑ To set the Fax Drive parameter:

Note: If you are running on a network, this was already set up by your network supervisor.

1. Choose the Fax Drive command from the Configure menu. This activates the Fax Drive dialog box.
2. Enter the directory name used when Fax Telecommunications was installed with the Install program. (For more information on that procedure, see the *Installation* chapter.)
3. Select OK .

❑ To set the Page Length:

1. Choose Page Length from the Configure menu.

This allows you to set the physical size of the pages that will come out of the facsimile machine you are sending faxes to. The default setting is 11 inches, so don't change it if you want to send letter-size faxes. However, if you are going to be sending faxes of only two or three sentences, you can set this to 2, so the page length is only two inches and you don't waste paper. You can change this setting at any time.

2. Select OK.

❑ To set the Cover Letter option:

1. Choose Cover Page from the Configure menu.

2. Select the Cover Page option if you generally want to send cover pages with your faxes; if you generally don't want to send cover pages, unselect it.

If you do select the Cover Page option, Fax Telecommunications gives you the *opportunity* to create a cover page in the PC Tools Desktop Notepads application before sending a fax.

4. Select OK.

Fax Telecommunications automatically includes a logo at the top of all of your cover pages. This allows you to have a personalized logo at the top of your cover page, such as your company logo. The logo comes from the file PCTOOLS.PCX. You can change the contents of the file with a graphics editor such as PC Paintbrush or any other graphics program that supports .PCX files. If you create a new .PCX file to be used with your cover pages, it must be named PCTOOLS.PCX and must be in your PC Tools directory.

☐ **To set the Time Format:**

1. Choose Send a Fax from the Telecommunications submenu if you are not already working in this application.
2. Choose Time Format from the Configure menu.
3. Select whatever Fax Telecommunications time format you want to use: AM/PM or 24-hour.
4. Select OK.

☐ **Telling Fax Telecommunications who is sending faxes:**

1. Choose Send a Fax from the Telecommunications submenu if you are not already working in this application.
2. Choose the Sent From command from the Configure menu.
3. Type in your name.

Your name will now appear in the Fax Details dialog box as the default, thus saving you the time of entering it every time you create a new fax.

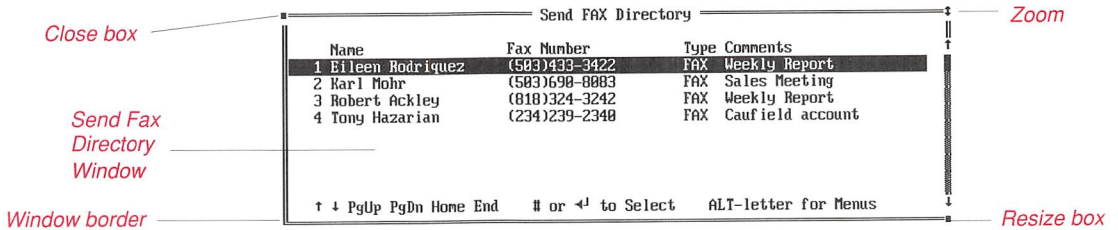
4. Select OK.

Note: Some of the information used to configure Fax Telecommunications is printed at the top of each fax page faxes you send. This information includes who you are sending the fax to, who sent the fax, the date and time the fax was sent, and the page number of the fax.

Start Fax Telecommunications

Select Telecommunications from the PC Tools Desktop main menu, then select Send a Fax to display the Send Fax screen.

Send Fax Telecommunications
Horizontal Menu bar



1Help 2Index 3Exit 4Add 5Edit 6Delete 7Send 8Chklog 9Swap 10Menu — Message Bar

The Send Fax screen contains the following parts:

Send Fax Horizontal Menu Bar: is the bar across the top of the screen containing the names of pull-down menus. A time display is in the far-right corner.

Close Box: used with the mouse to close the window and escape the application.

Send Fax Directory Window: contains summary information for items in the Send Fax directory. For more information on individual Fax fields, see "Sending a New Fax."

Entry Number: shows the number of the entry in the Send Fax Window (allows up to 99 entries).

Name: shows who the fax will be sent to.

Fax Number: shows the fax number the fax will be sent to.

Type: shows whether you are sending a file in fax mode or non-fax mode. If it is in fax mode it will say "Fax," if it is in non-fax mode it will say "File." The Fax Board to Fax Board option in the Fax Details dialog box must be selected for the type to say "File."

In fax mode, Fax Telecommunications converts the faxes you are sending into a format that can be understood by facsimile machines and other fax boards.

In non-fax mode, Fax Telecommunications does not convert the files you are sending; it sends them just as they are, similar to the way a modem sends files. In non-fax mode, you can send any type of file, including program (.EXE) files that you can't send in fax mode. However, you can only send files in non-fax mode to another PC Tools Desktop Fax Telecommunications-supported fax board.

Comments: gives information about an individual fax entry. For example, if a fax is sent as a weekly report, this might say "Weekly report."

Window Border: indicates the active window with a double border. The inactive window has a single border.

Message Bar: displays a row of nine shortcut keys that correspond to commands on the menu bar. Clicking on the shortcut key with the mouse or pressing the corresponding function key (which is indicated in white on a black background) does the same as selecting the command from the menu. For example, to add a Send Fax entry, click on the Add command in the Message Bar with the mouse or press the F4 key.

Resize Box: in the lower-right corner of the Send Fax Directory window, this is used with the mouse to resize the window.

Zoom Box: used with the mouse to expand the active window to full-screen size, or to reduce the active window to the size it was before it was zoomed to full size. You can also use the Zoom command in the Window menu.

The following shortcut keys are supported:

Shortcut Key	Function
F1	Help
F2	Help Index
F3	Exit
F4	Add a new entry
F5	Edit the current entry
F6	Delete the current entry
F7	Send files to the selected entry
F8	Check the Fax Log
F9	Swap active windows
F10	Activate horizontal menu bar

Sending a New Fax

❑ To send a new fax:

1. Choose Telecommunications from the PC Tools Desktop main menu, then choose Send a Fax from the Telecommunications submenu.
2. Choose Add a New Entry from the Actions menu, or
Click on 4 Add in the Message Bar, or
Press the F7 key.

This activates the Fax Details dialog box, which includes a list of Fax parameters that you can edit:

FAX Details

Date: 02/12/98
Time: 08:22p
From: Andrew Masters

To: Eileen Rodriguez
FAX Number: (583)433-3422
Comments: Weekly Report

(.) Normal Resolution
() Fine Resolution
() FAX Board To FAX Board

Select Files and SendCreate a new File and SendCancel

Date: where you type the date you want to send your fax. For your convenience, Fax Telecommunications automatically enters the current date, so don't change it unless you want to send a fax at a future time.

For example, if you want to send your fax on Feb. 27, 1990, you would type, 02/27/90.

Time: Fax Telecommunications automatically enters the current time, so don't change it unless you want to send a fax at a future time.

Note: *Using the current date and time format will send the fax immediately.*

For example, if you want to send your fax at 11:05 p.m. when the rates are cheaper, you would enter 11:05p and the fax would automatically be sent at that time.

From: who the fax is from. This is preset in the Configure menu, so you shouldn't have to enter anything unless you want to change the name (32-character limit).

To: the name of the person you are sending the fax to (32-character limit).

Fax Number: the fax number you want your fax sent to (32-character limit).

Comments: you can optionally identify your fax entry for future reference so you can easily find it again. For example, if you send a fax on a weekly basis to a co-worker, you might type "Weekly Report." Since whatever you typed will appear in the Send Fax Directory window, this comment should be descriptive of the fax you are sending.

Normal Resolution: select this option for most faxes that you send. This is faster than Fine Resolution and your documents will still appear reasonably clear if you aren't sending graphics files.

Fine Resolution: select this option if you want your fax to appear especially sharp or if you are sending graphics files. This is slower than Normal Resolution and is, therefore, a more expensive fax transmission.

Fax Board to Fax Board: select this if you want to send binary files, which cannot be sent in an understandable format as faxes. A program file such as DESKTOP.EXE is an example of a binary file. You can send binary files *only* to another fax board supported by Fax Telecommunications, not

a facsimile machine. This feature allows you to use your fax board as you would use a modem.

At this point you must select files to send that make up your fax message.

3. Go to step 4 if you want to send files you have previously created with PC Tools Desktop Notepads.

Go to step 9 if you want to create a new PC Tools Desktop Notepads file to send.

If you want to cancel and return to the Send Fax screen, select Quit.

4. Select the Select Files and Send command button from within the Fax Details dialog box. This activates the Files to Select dialog box.
5. Select a file you want to send, then select Add to put it in the Files to Send dialog box (you can send up to 20 files).
6. Select Send to send the files once you have selected all of the files you want to send.

If you *did not* configure Fax Telecommunications to include a cover page, a dialog appears telling you that your fax has been sent. Go to step 14.

If you *did* configure Fax Telecommunications to include a cover page with your fax, you will receive a dialog box that asks if you still want to create a cover page.

7. Select OK if you want to create a cover page. This activates a new PC Tools Desktop Notepads file for you to type your cover page.

Note: Fax Telecommunications always uses the same file for cover pages, COVER.TXT. The contents are automatically erased each time you send a fax.

8. Type in whatever you want your cover page to say and press ESC or click on the close box to save it.
A dialog box appears telling you that your fax has been sent. Go to step 14.

9. Select the Create a New File command button.
This activates the Create a File dialog box.
10. Type in the name of the file you want to create for your fax and select OK.
This activates a new PC Tools Desktop Notepads file for you to type in your fax document.
11. Type in whatever you want your fax to say and press ESC or click on the close box to save it.

If you *did not* preset Fax Telecommunications to include a cover page, a dialog appears telling you that your fax has been sent. Go to step 14.

If you *did* configure Fax Telecommunications to include a cover page with your fax, you will receive a dialog box that asks if you still want to create a cover page.

12. Select OK if you want to create a cover page. This activates a new PC Tools Desktop Notepads file for you to type your cover page.
13. Type in whatever you want your cover page to say and press ESC or click on the close box to save it.
A dialog box appears telling you that your fax has been sent.
14. Select OK and you are returned to the Send Fax Directory where you will see the fax you just created.

Sending an Existing Fax

After you have created a fax entry in the Fax Details dialog box, it is stored in the Send Fax directory and you can send a fax without having to re-enter Fax Details information.

Sending an existing fax entry gives you the option to send the same files that you selected to be sent when you created the fax entry. Let's say you want to send a weekly status report to your boss. You can create the status report in a PC Tools Desktop Notepads file, for example, STATUS.TXT. Once you have created a fax entry in the Send Fax Directory using the procedure in the previous section, all you need to do is update the STATUS.TXT file with Notepads once a week and then send the entry in the Send Fax Directory as shown in the following procedure.

❑ **To send a fax from an existing entry:**

1. Choose Telecommunications from the PC Tools Desktop main menu, then choose Send a Fax from the Telecommunications submenu.
2. Select the fax entry that displays the name and fax number of the person you want to send your fax to.
3. Choose Send Files to the Selected Entry from the Actions menu, or

Double-click on the entry, or

Click on 7 Send in the Message Bar, or

Press the F7 key.

FAX Details

Date: 02/12/90
 Time: 08:22p
 From: Andrew Masters

To: Eileen Rodriguez
 FAX Number: (503)433-3422
 Comments: Weekly Report

(.) Normal Resolution
 () Fine Resolution
 () FAX Board To FAX Board

Select Files and Send Create a new File and Send Cancel

4. Select the Select Files and Send command button from within the Fax Details dialog box.

This activates the Files to Send dialog box, which allows you to select Send, to send the file(s) you had previously sent, or Choose Different Files, if you want to select other files to send instead.

Files To Send

C:\PCT6-0\TEST.TXT

Send Choose different files Cancel

5. Select Send.

(Selecting Choose Different Files activates the Files to Select dialog box. If you do this, select Add after each file you select, then select Send.)

If you *did not* configure Fax Telecommunications to include a cover page, a dialog appears telling you that your fax has been sent. Go to step 8.

If you *did* configure Fax Telecommunications to include a cover page with your fax, you will receive a dialog box that asks if you still want to create a cover page.

6. Select OK if you want to create a cover page. This activates a new PC Tools Desktop Notepads file for you to type your cover page.
7. Type in whatever you want your cover page to say and press ESC or click on the close box to save it.
A dialog box appears telling you that your fax has been sent.
8. Select OK. You are returned to the Send Fax Directory where you will see the fax you just created.

Changing and Deleting Fax Entries

❑ To change an existing fax entry:

1. Choose Telecommunications from the PC Tools Desktop main menu, then choose Send a Fax from the submenu.
2. Choose Edit the Current Entry from the Actions menu.
This activates the Fax Details dialog box.
3. Type in the information you want in the Fax Details dialog box and select either Select Files and Send or Create a New File and Send.

See the earlier-described procedures “Send a New Fax” or “Send an Existing Fax” for comprehensive details on completing a fax transmission.

❑ To delete a fax entry:

1. Choose Telecommunications from the PC Tools Desktop main menu, then choose Send a Fax from the submenu.
2. Select the Send Fax entry you want to delete.

- Choose Delete the Current Entry from the Actions menu.

The Send Fax entry is deleted.

Checking the Fax Log

The Fax Log is like a status report; it tells you the status of faxes that have been sent and received.

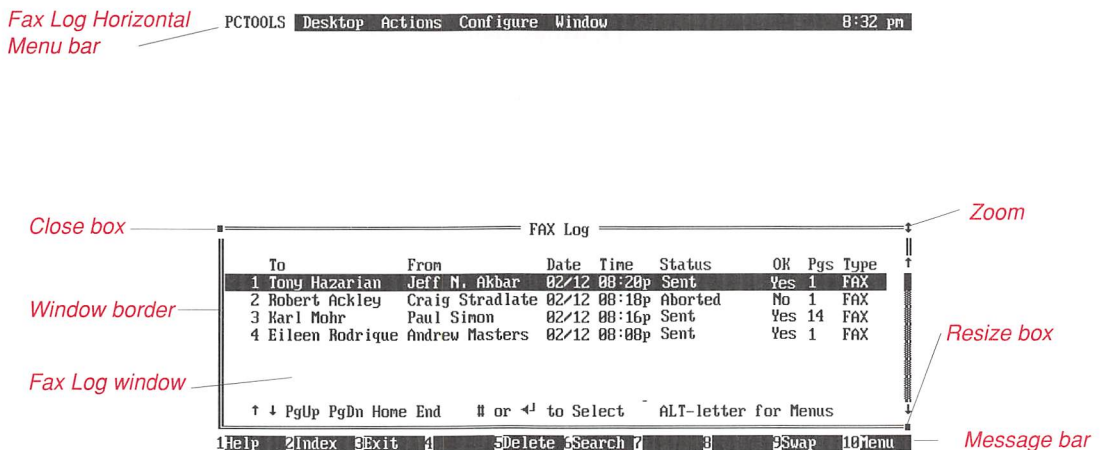
❑ To check the Fax Log:

- Choose Check the Fax Log from the Telecommunications submenu.,

or

Choose Check the Fax Log from the the Actions menu in the Send Fax Telecommunications application.

Fax Log Screen



The Fax Log screen contains the following parts:

Fax Log Horizontal Menu Bar: is the bar across the top of the screen containing the names of pull-down menus. A time display is in the far-right corner.

Close Box: used with the mouse to close the window and escape the application.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Fax Log Window: contains summary information for items in the Fax Log:

Entry Number: shows the number of the entry in the Fax Log Window (allows up to 99 entries).

To: shows who a fax was sent to.

From: shows the name of the person who sent the fax.

Date: shows the date a fax was sent or is to be sent.

Time: shows the time a fax was sent or is to be sent.

Status: shows you the condition of your fax transmission. For example, if you sent a fax and the fax transmission was successfully transmitted, the Status would say "Sent." The following is a list all the possible Status definitions that you may see:

Dialing: tells you a fax number is still being dialed.

Sending: tells you a fax is in the process of being sent.

Sent: tells you a fax has been successfully sent to either an actual facsimile machine or another computer equipped with a fax board.

Receiving: tells you that a fax is in the process of being received by your fax board.

Received: tells you that a fax has been successfully received by your fax board from either an actual facsimile machine or another computer equipped with a fax board.

Aborted: tells you that you have canceled a fax transmission.

Error message: tells you that your fax board is having trouble sending or receiving a fax, or that the phone line is not working properly. **Non CCP:** means one of the fax boards is not compatible with Fax Telecommunications; **Bad Phone, Drop:** means there is a transmission problem in the phone lines. Try sending the fax again if you see either of these two messages.

OK: displays "Yes" if there were no problems with the fax transmission, displays "No" if there were problems (this

means that either “Abort” or an error message code is displayed in the status field). If you are in a hurry and want to quickly check the overall status of a fax, just check the OK field.

Pages: tells you how many pages a fax is. This reflects what you entered in the Send Fax Directory. For example, if you entered 2 for Page Length, and your fax is 10 inches long, the page count in the Fax Log would be 5. If you have a cover page, this is also included in the page total.

Type: shows whether you are sending a file in fax mode or non-fax mode. If it is in fax mode, it will say “Fax;” if it is in non-fax mode, it will say “File.” The Fax Board to Fax Board option in the Fax Details dialog box must be selected for the type to say “File.”

In fax mode, Fax Telecommunications converts the faxes you are sending into a format that can be understood by facsimile machines and other fax boards.

In non-fax mode, Fax Telecommunications does not convert the files you are sending; it sends them just as they are, similar to the way a modem sends files. In non-fax mode, you can send any type of file, including program (.EXE) files that you can’t send in fax mode. However, you can only send files in non-fax mode to another fax board supported by Fax Telecommunications.

Message Bar: displays a row of seven shortcut keys for Fax Log commands. Clicking on the shortcut key with the mouse or pressing the corresponding function key does the same as selecting the command from the menu. For example, to delete a Fax Log entry, click on the Delete command in the Message Bar with the mouse or press the F5 key.

Resize Box: is used with the mouse to resize the window. It is located in the lower-right corner of the Send Fax Directory window.

Zoom Box: used with the mouse to expand the active window to full-screen size. You can also use the Zoom command in the Window menu.

The following shortcut keys are supported:

Shortcut Key	Function
F1	Help
F2	Help Index
F3	Exit
F4	blank
F5	Delete Fax Log entry
F6	Search for a Fax Log entry
F7	blank
F8	blank
F9	Swap active windows
F10	Activate horizontal menu bar

With the Fax Log, you can check to make sure that a fax has been sent and you can stop a fax that you have already sent.

You can also delete Fax Log entries that you don't need to view anymore. We recommend that you regularly check your Fax Log for entries to be deleted to avoid having a cluttered Fax Log.

In addition, you can control the rate at which information in the Fax Log is updated.

The Fax Log has four commands: Delete the Selected Entry, Search, Fax Drive, and AutoUpdate.

❑ To delete a Fax Log entry:

1. Select the Fax Log entry you want to delete.
2. Choose Delete the Selected Entry from the Actions menu. The entry is deleted.

If you did not send the fax you are deleting, a dialog box is activated warning that the fax isn't yours. Select OK if you still want to delete it; select Cancel to return to the Fax Log.

Note: You can also use this command to terminate a fax you just sent from the Send Fax Directory before the status says Sent.

❑ To Search for a Fax Log entry:

- Choose Search from the Actions menu. Enter the text you want to search for and select OK.

All of the Fax Log entries that meet the search criteria are displayed on the screen.

❑ To set the Fax Drive parameter:

1. Choose the Fax Drive command from the Configure menu. This activates the Fax Drive dialog box.
2. Enter the directory name used when Fax Telecommunications was installed with the Install program. (For more information on that procedure, see the *Installation* chapter.)
3. Select OK .

Note: The Fax Drive command is also available in Send Fax Telecommunications.

❑ To set the AutoUpdate option:

1. Choose AutoUpdate from the Configure menu.
2. Type in the number of seconds delay that you want between Fax Log updates and select OK.

At the interval you defined (such as 30 seconds), the Fax Log will be updated. A message will appear at that interval telling you that the update is occurring.

11. Macro Editor

The PC Tools Desktop Macro Editor is a keyboard utility that lets you store and recall frequently used text, keystrokes, commands, and instructions. With keyboard macros, you can speed up your work by reducing the number of keystrokes required to perform complex or repetitive tasks. The Macro Editor allows you to assign a sequence of keystrokes (which could be commands or data) to one key or a key combination.

Macros can also be used with the PC Tools Desktop Appointment Scheduler to automate tasks while you are away (see the *Appointment Scheduler* chapter for more information on scheduling macros). PC Tools Desktop is shipped with a file containing sample macros that are ready to run. You can try the examples that are explained in the *Appointment Scheduler* chapter and see how easy it is to use macros to simplify your work.

PC Tools Desktop is also shipped with macros for printing with the IBM Proprinter, Hewlett-Packard Laserjet, Epson FX-80, and any Panasonic printers.

You can redefine almost any key to perform one or more commands. For example, if you use a particular character string frequently in a document, you can create a macro that, when you press a specified key or key combination, “plays back” that character string. You can also create macros that automatically play back to start an application. Or if you want to print a file with special print features, you can insert macro names that send commands to the printer.

Macros are easy to play back. When you enter a macro key combination (which you assign), each keystroke, command, and instruction is carried out, starting at the cursor's current location. After a macro has run, you can continue working in the application as you normally do.

Since you can choose whether or not to run PC Tools Desktop memory-resident, macro playback is affected. If PC Tools Desktop is not resident, macros will only playback in PC Tools Desktop. To play back macros everywhere, you have to run PC Tools Desktop as a memory-resident program.

Use the Macro Editor to perform any of the following tasks:

- Print text files with custom features
- Override other keyboard functions
- Quickly start PC Tools Desktop using a macro definition
- Start other applications
- Insert the date and time into files
- Add delays to start an application at a later time

The Macro Editor is generally compatible with ProKey versions 4.0 and higher. You can load existing ProKey macro files directly into the Macro Editor, but there are a few exceptions.

- Some keys that are supported by ProKey are not supported by the Macro Editor. See the end of this chapter for a complete list of valid keys and key combinations.
- The Macro Editor does not support redefinition of the entire keyboard; it only recognizes the standard IBM BIOS scan codes.
- The Macro Editor does not include support for guarding macros or unique macro names.

Important: Applications included in PC Tools Utilities, such as Compress and PC Secure, that can be executed with optional parameters at the DOS command line, can be used with macros, and macros can be used to activate any application. However, macros cannot be used to select commands from the pull-down menus in PC Tools Utilities' PC Shell, PC Secure, Compress, and Central Point Backup. In some cases, these applications require you to confirm commands that will modify a file or disk as the result of keystroke input. Therefore, these applications do not buffer keystrokes that would cause you to inadvertently bypass a confirmation process. Since keystrokes are not buffered in these applications, macros will not work.

Note: Editing commands in the Macro Editor are the same as those in the Notepads Edit and Search menus. If you don't know how to use the Notepads editing functions, turn to "Editing Text" and "Searching in Notepads" in the Notepads chapter.

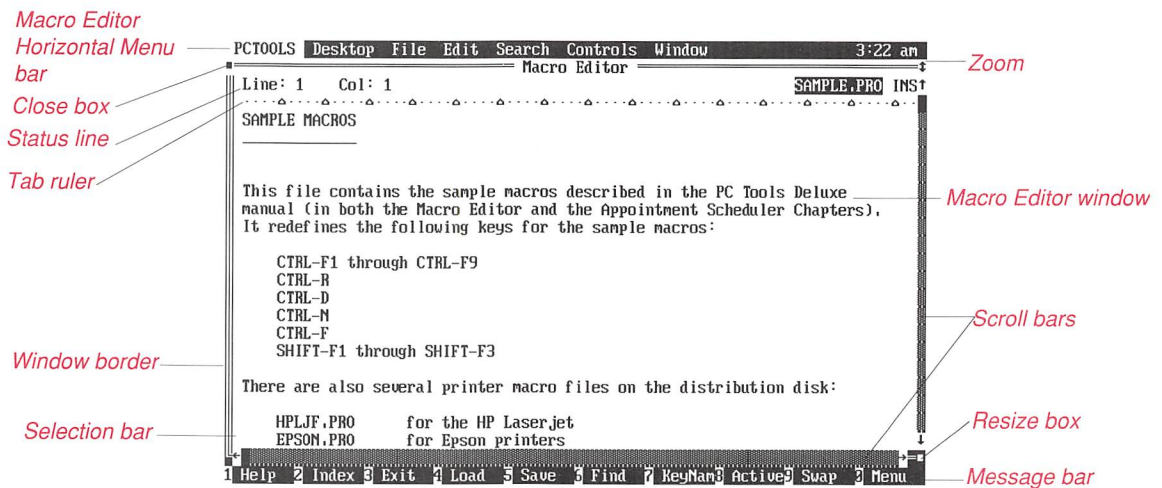
Opening the Macro Editor

You can view and edit the contents of a macro file by choosing Macro Editor from the PC Tools Desktop pull-down menu. Macros are created in a Notepads window and stored as text files with an assigned file name. All editing keys and text-editing features used in Notepads are available in the Macro Editor. You should be familiar with using Notepads before using the Macro Editor.

Once the Macro Editor is chosen from the PC Tools Desktop pull-down menu, the File Load dialog box appears. See the *About PC Tools Desktop* chapter for how to use the File Load dialog box.

After a Macro Editor file has been loaded or created, the Macro Editor window is displayed.

Note: You can display as many as 15 Macro Editor files simultaneously by choosing Macro Editor again from the PC Tools Desktop pull-down menu.



The Macro Editor screen contains the following parts:

Macro Editor Horizontal Menu Bar: contains the names of pull-down menus and a time display in the far-right corner.

Close Box: used with the mouse to close a window.

Status Line: shows what line and column the cursor is on, the file name, and whether you are in insert or overwrite mode. When "INS" appears in the upper-right corner of the window, you are in insert mode; otherwise, you are in overwrite mode.

Tab Ruler: used to see tab stops. It appears in the Macro Editor window when the Tab Ruler Display has been turned on in Notepads or Outlines and saved with the Save Setup command at the time the macro is created.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Selection Bar: blank space in the first column used with the mouse to select a line of text.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using the Macro Editor when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to save your document, just press F5 or click on the Save command in the Message Bar; this brings up the Save File to Disk dialog box.

Resize Box: used with the mouse to resize the window.

Scroll Bars: used with the mouse to move, or “scroll,” through the file.

Macro Editor Window: contains the text of the file you're working with.

Zoom Box: used with the mouse to expand the active window to full-screen size or to reduce the window to the size it was before being zoomed. You can also use the Zoom command in the Window menu.

Creating Macros

You can create macros in the file displayed in the Macro Editor window. The following illustration shows you what a macro looks like in a macro file. It consists of four main parts: a beginning, a keystroke, a script, and an end. The script is a recorded sequence of characters and commands. The keystroke is the key or key combination that you press to “play” the script.

```
<begdef><ctrlc>macro editor<enddef>
```

```
beginning  keystroke  script           end
```

This example shows that the keystroke CTRL - c has been assigned the script “macro editor.” If the macro is active while you are working in

an application, pressing CTRL and C at the same time displays the words “macro editor” on your screen.

When creating a macro, you need to remember a few rules:

- Macros must begin with the label `<begdef>` and end with `<enddef>`.
- Macro keystrokes, the names of special keys, and the `<begdef>` and `<enddef>` labels must be contained within angular brackets. Special keys include function key names, control keys, cursor keys, etc. The keys are listed at the end of this chapter.

Note: Opening a macro file does not carry out the macro commands and instructions. To carry out the commands, you need to exit the Macro Editor and play back the macro elsewhere. Playing back a macro is explained later in this chapter.

Creating macros involves four steps: writing, describing, activating, and testing the new macro.

❑ To write a macro:

Before writing a macro, you need to decide what you want the macro to do and remember the rules for creating macros.

1. Press ALT and the + key at the top of your keyboard to mark the beginning of your macro.
`<begdef>` is automatically displayed.

Note: The `<begdef>` label must start in the first column, but tabs and carriage returns are ignored after the `<begdef>` label so you can read your macros easier.

2. Press the keystrokes you want to use.
All macro keystrokes must be contained within left and right angular brackets “< >.” Enter names of any keys normally used for editing (for example, the UP arrow key or ENTER) by pressing F7, then the specified key. (See “Important” below.)
3. Type in the script you want.
4. Press ALT and the - key at the top of your keyboard to mark the end of the macro, then press ENTER.
`<enddef>` is automatically displayed.

An example macro is shown below:

```
<begdef><ctrlp>Central Point<enddef>
```

The CTRL - P key combination is redefined to display "Central Point."

Important: Certain keys require pressing F7 prior to using them in a macro. F7 means "insert the next key rather than performing its PC Tools Desktop function." For example, in PC Tools Desktop, most of the function keys are already defined. In addition, several of the ALT key sequences are used in the pull-down menus. If you want to define a macro that uses a function key, ALT key, or most editing keys (for example, the arrow keys, INS, DEL, BACKSPACE, etc.), you need to type F7 immediately before the key you want entered into the macro. For example, F1 is reserved for Help in PC Tools Desktop. If you want to create a macro to be used with some other program that uses F1, you would press F7 then F1 to automatically insert F1 into your macro definition. Pressing the SHIFT or ALT key along with the function keys will not require you to press F7 first, however, as these are not used by PC Tools Desktop.

❑ To describe a macro:

Give the macro a descriptive name to help you remember what it does. It is also a good idea to attach a comment to each of your macro definitions, especially as they get more complex. You can add any kind of comment by typing the desired information before starting the macro definition. The PC Tools Desktop Macro Editor won't play back anything that is not contained between the <begdef> and <enddef> labels.

Macro Activation

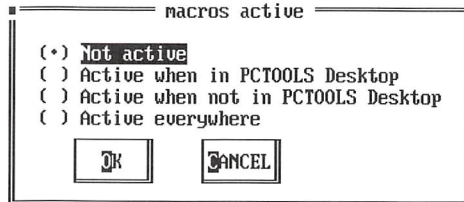
You can specify one of three times a macro is active or will play back:

- Active only when you are using PC Tool Desktop.
- Active only when you are using another program, or at the DOS command-line prompt, but not in PC Tools Desktop.
- Active at all times: in PC Tools Desktop, in another program, or at the DOS command line.

When saving a macro file, the system updates any edited macros that were previously made active, so you won't have to reactivate them. All files defined as active are saved in special memory, ready to play back the macro definition when you press the assigned key sequence.

❑ To activate a macro:

1. Choose Macro Activation from the File menu or press F8. The Macros Active dialog box appears.



2. Select any one of the following options:

Not Active: specifies that no macros in the current file will play back (be active).

Active When in PC Tools Desktop: specifies that the macros contained in the current file will play back only when you are using a PC Tools Desktop application. This option is useful for printer macro files. Note that macros will not play back inside the Macro Editor.

Active When Not in PC Tools Desktop: specifies that the macros contained in the current file will play back anywhere you are working, except in PC Tools Desktop. This option is useful if you have macros defined to play back one way in PC Tools Desktop Notepads, for example, and another way in another word processor.

Active Everywhere: specifies that macros will play back everywhere on your system: PC Tools Desktop applications, other applications on your system, and at the DOS prompt.

3. Select OK to activate the macro definitions in the current file. The dialog box closes and your file is saved.

Note: You can have more than one macro file active at a time. For example, this would be useful if you have some macros you want to be active only in PC Tools Desktop, and other macros that you want to be active everywhere.

❑ To test the macro:

After creating your macro, you'll want to test it to make sure it performs correctly by running it and confirming its results. You can test a macro from an application or the DOS prompt, depending on the purpose of the macro.

1. Exit the Macro Editor after activating your macros.
2. Place the cursor where you want to execute the macro.
3. Press the keystrokes you defined.
The assigned macro is played back.

❑ To cancel the macro:

When you are testing a macro, you may notice that it is not doing what you intended. You can easily cancel the macro while it is running and then go back to the Macro Editor to make any changes to the macro.

- Press **ESC** to terminate a running macro.
- Choose Load from the File menu or press **F4**.
The File Load dialog box appears containing the names of the existing files, drives, and directories. For information about using the File Load dialog box, see "File Load Dialog Box" in the *About PC Tools Desktop* chapter.

Note: When you load a file into the Macro Editor window using the Load command, any Macro Editor files currently open are discarded and replaced by the file you are loading. Any changes made to the current file are lost when you load another file, so be sure to save changes to your current file first. Or you can open another macro window and have both.

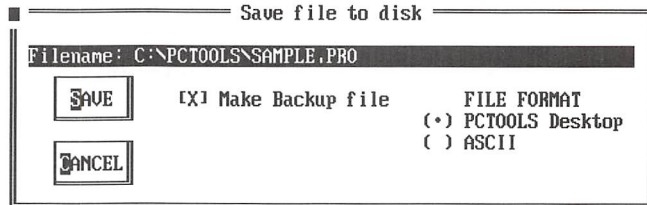
Loading Files

Saving Files

Macro Editor files are automatically saved when you close the Macro Editor window by pressing **ESC** or clicking in the close box. In addition, you can save a file using the Save and Autosave commands from the File menu.

When you save a file, all changes made to the file are saved in the format you select, but to use a macro file, it should be saved in PC Tools Desktop format. In addition, any macro activation option is saved with your file.

1. Choose Save from the File menu or press F5.
The Save File to Disk dialog box appears with the name of the current file in the Filename text box.



Note: If you want to save the file under a different name, just enter a new name in the text box.

2. Select any of the following Save options:

PC Tools Desktop: saves your Macro Editor file in PC Tools Desktop format, preserving all window colors and sizes. PC Tools Desktop is the default file format.

ASCII: saves your Macro Editor file as a straight text file. This option provides maximum interchangeability with other word processors, but does not save formatting information. If you load an existing ASCII file, it will be saved as ASCII unless you change the option.

Make Backup File: in addition to saving the file to the specified file name and file format, this option creates a backup file for your Macro Editor file and gives it the .BAK extension. The default backup option is ON. If you do not want to create a backup file, select this option to turn it off.

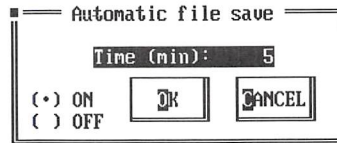
3. Select the Save command button to save your file with the options you've selected.
The dialog box closes.

Autosave

You can have the Macro Editor save your file automatically at specified intervals. The Autosave command saves a file just like the Save command, but at a specific time interval that you set. It is recommended that you use this command to minimize any data loss from power outages.

1. Choose Autosave from the File menu.

The Automatic File Save dialog box appears.



2. Type a number representing the number of minutes between each automatic save. The default setting is 5 minutes.
3. Select either one of the automatic save option buttons:
On: turns on the automatic save for the number value you've set. The default setting is on.
Off: turns off the automatic save.
4. Select OK to set the automatic save.
At the specified interval your file is saved if you turned Autosave on.

Editing Text

When you want to create a new macro file or make changes to an existing file, you need to perform basic word-processing tasks. From the Macro Editor's Edit menu, you can do any of the following:

- Cut, copy, and paste
- Delete all text
- Insert files
- Move to a specific line

You can also use commands on the Search menu to find, change, or replace specified text.

These operations are explained in the *Notepads* chapter.

Erasing All Macros

Once you select any of the active options from the Macro activation dialog box, PC Tools Desktop encodes and stores the macro for playback in a special memory buffer. You can erase all macros if you don't like what you've created so far or if the results of running the macro are unsatisfactory. Erasing all macros amounts to purging the memory buffer, but does not affect the file stored to disk or displayed in the current window.

❑ To erase all macros:

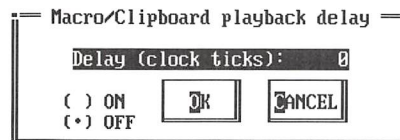
- Choose Erase All Macros from the Controls menu.
This command does not affect the file stored on disk or displayed in the window. It simply deactivates any active macros.

Setting the Playback Delay

You can control how fast a macro plays back in an application. When using multiple keystrokes in a macro, part of the macro may be ignored or your computer may beep during playback. If this happens, it is because the contents of the macro are being sent to the application too fast for it to process.

❑ To set the playback delay:

1. Choose Playback Delay from the Controls menu.
The Macro/Clipboard Playback delay dialog box is displayed.



2. Type the number representing the amount of time you want the playback delayed.

Values are measured in eighteenths ($1/18$) of a second. This number is the number of additional $1/18$ -second time periods to insert between each character played in the macro. A value of zero will send a character every $1/18$ second.

3. Select either one of the playback delay option buttons:

On: turns on the playback delay option, causing macros to delay playback for the amount of time you've set.

Off: turns off the macro playback delay option. The default setting is off.

4. Select OK to turn the playback delay on or off.

Using Learn Mode

This command allows you to create macros by recording keystrokes. The default setting is off. When you turn Learn Mode on, a checkmark appears to the left of the command name on the Controls pull-down menu.

☐ To create a macro using Learn Mode:

***Note:** PC Tools Desktop has to be running as a memory-resident program to use this feature.*

Learn Mode is another way to create macros. Instead of typing in each key manually, you can request that the Macro Editor remember the keys you press in your applications and save them for you in a macro.

All macros created with Learn Mode are copied into the macro memory buffer and saved. The next time you bring up PC Tools Desktop, a temporary file (LEARN.PRO) is automatically created and contains the macros created with Learn Mode.

1. Choose Learn Mode from the Controls menu to switch it on.
2. Hotkey out of PC Tools Desktop and bring up the application you want to create the macros for.
3. Press ALT and the + key at the top of your keyboard. The cursor shape changes to a block to indicate you are in Learn Mode. (If your particular application already uses a block-shaped cursor, you won't notice a difference.)
4. Press the keystroke combination for this macro. As an example, type CTRL and F.
5. Create the macro script by entering the keystrokes and commands you want to record. In Learn Mode, every keystroke becomes part of the macro, even if you press the BACKSPACE key to correct a mistake. So check any recorded macro for errors or extra keystrokes.
6. Press ALT and the - key at the top of the keyboard to end the macro. The cursor shape changes back to the blinking line (or whatever cursor shape your application uses) to indicate you are no longer creating macros in Learn Mode.

***Note:** You are still in Learn Mode until you go back to the Macro Editor to turn it off.*

Learn Mode: When you create macros in Learn Mode, the macros are saved in a special memory buffer until you run PC Tools Desktop again. When you re-enter PC Tools Desktop, the Learn Mode macros are copied into a special file, automatically created for this purpose, called LEARN.PRO.

You can have macros for all of your favorite applications. For instance, you can have macros for your word processor, your spreadsheet, your database, whatever applications you use frequently. With the Learn Mode macros saved to the special LEARN.PRO file, you can use the Clipboard to copy and paste the macros into separate files for each of your applications, ready to be active whenever you use that particular application.

Save Setup

With Save Setup you can save all the selections you've made in the Controls and Window menus. For example, if you usually use the same settings for windows colors and playback delay, you can choose the Save Setup command so that every time you open a new macro, you don't need to make any changes. Unless Save Setup is used, the commands you choose on the Controls and Window menus affect only the current file.

Using Macros for Specific Operations

You can use macros for a variety of operations. Instructions for some of the uses of a macro are included in this section. In addition, the *Appointment Scheduler* chapter explains how to use alarms to run a macro. You will learn how to do the following:

- Build printer control macros
- Override an active macro
- Open PC Tools Desktop with a macro
- Open any PC Tools Desktop application with a macro
- Open other applications
- Link macros together
- Insert the date and time in a macro
- Add delays or timed pauses
- Create forms-entry pauses

❑ To build printer control macros:

Note: *Printer macros are usable only in PC Tools Desktop Notepads, Outlines, and Databases forms.*

Printer control macros are commands inserted into the text of a document that, when you print the document, will create special formatting features such as boldface, italic, and superscript when printing. The commands themselves do not appear in the text when you print; the commands are sent to your printer. Thus, you need special commands for your particular printer, since different printers require different codes.

In addition, you can send setup commands to your printer for your favorite font, type size, printing mode, etc. In each of the sample printer macro files on the PC Tools Deluxe disk you will find a macro called SETUP. Anytime you print a file, PC Tools Desktop automatically looks for the SETUP macro in your currently defined printer macros. If found, PC Tools Desktop issues the printer commands in this macro to the printer just as if you had entered the macro into your file. Anytime you want to print a document with special fonts, type size, etc., you don't need to remember to put the macro in each file. PC Tools Desktop does it for you.

This section will first explain how to build macros for printing then explain how to use them with a sample Notepads file.

PC Tools Desktop has been shipped to you with printer control macros for the Epson FX-80, the IBM Proprinter, the HP Laserjet, and Panasonic printers. These may also work with printers that can emulate one of these. An example printer control macro is shown below:

```
<begdef><ctrlf9>|BOLDON|<esc>E<enddef>
```

When this example macro is inserted into the text, the text will be printed in boldface type.

Note: *Printer control macros cannot be nested.*

If you want to build your own printer control macro or change and enhance the supplied macros, here's what you do:

❑ To turn the control on:

The instructions below use the following example printer control macro:

```
<begdef><ctrlf9>|BOLDON|<esc>E<enddef>
```

1. Press ALT and the + key at the top of your keyboard.
<begdef> is displayed.
2. Press the keystroke combination for this macro.
In the example, typing CTRL - F9 is used to turn on boldface printing.
3. Press the | key and type the text you want to have displayed in your Notepads file when this macro is used, and then press the | key again.
In the example, BOLDON represents the beginning of boldface printing.

***Note:** The | is generally on the same key as the \, and appears as two vertical lines on the screen.*

4. Type in the function of the macro, in this example, <esc> E. The function is not performed until the text is printed. When the text is printed, the word |BOLDON| is replaced with the printer code necessary for boldface printing. (See your printer manual for the necessary printer codes.)
5. Press ALT and the - key at the top of the keyboard to end the macro.
<enddef> is displayed.

❑ To turn the control off:

The instructions below use the following example printer control macro:

```
<begdef><ctrlf10>|BOLDOFF|<esc>F<enddef>
```

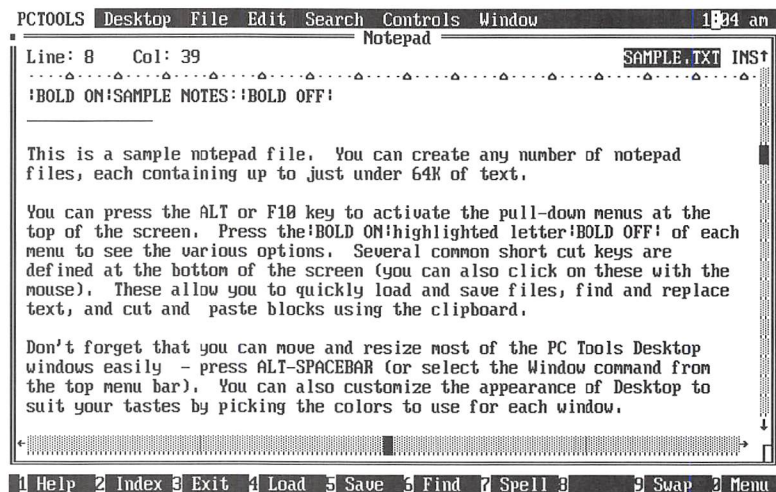
1. Press ALT and the + key at the top of your keyboard.
<begdef> is displayed.
2. Press the keystroke combination for this macro.
In the example, typing CTRL - F10 is used to turn off boldface print.

3. Press the | key and type the text you want to have displayed in your Notepads file when this macro is used, and then press the | key again.
In the example, BOLDOFF represents the end of boldface printing.
4. Type in the function of the macro, in this example, <esc> F. The function is not performed until the text is printed. When the text is printed, the word |BOLDOFF| is replaced with the printer code necessary to end boldface printing. (See your printer manual for the necessary printer codes.)
5. Press ALT and the - key at the top of the keyboard to end the macro.
<enddef> is displayed.

Note: Place any printer setup commands you want in the line between |SETUP| and <enddef> in the SETUP macros on your program disk. These commands are sent to your printer before any of your Notepads, Outlines, or Macro Editor files are printed.

❑ To use printer macros in a document:

The Macro Editor allows you to create macros you can insert in a Notepads file to send commands to your printer for custom printing features such as boldface and italics. The following illustration is a sample Notepads file showing you what a printer macro for boldface printing looks like in the document and the instructions for using printer macros.



1. Choose Macro Activation from the File menu in the Macro Editor and select the following option: Active When in PC Tools Desktop.
2. Write your document using Notepads.
3. Insert the macro commands where you want custom printing features.
4. Save the Notepads file in PC Tools Desktop format.
5. Choose Print to print your file.
The designated printing features appear in the document.

To override an active macro:

Keyboard macros override any other key definitions, including the special keys used by PC Tools Desktop. If you have an active macro that defines, for example, the F1 key to do some task, and you now want to get help in PC Tools Desktop (which also uses the F1 key), you need to temporarily disable the F1 macro key so it will perform the normal PC Tools Desktop help function.

You can tell the Macro Editor to ignore any macro definition for your next keystroke so that the key retains its original function.

- Press the back quote character (`) before the key you want to use.
The back quote character is the unshifted ~ (tilde) key on IBM PC keyboards.

In the above example, pressing ` , then the F1 key enables you to get help without interference from your predefined F1 macro.

Note: *Another way to override a macro definition is to turn the macro playback off when you are in your application. Do this from the File menu by choosing the Macro Activation option "Not Active."*

You can also override, or change, keys and key shift states on your keyboard. For example, if you are accustomed to typing on a typewriter, you will notice not every key on a computer keyboard is the same as a typewriter keyboard. You can redefine the computer keyboard to emulate a typewriter keyboard with macro definitions.

For example, on the typewriter keyboard, when you press SHIFT and the comma key, you type a comma, and when you press the SHIFT and the period key, you type a period. On the computer keyboard,

however, when you press the `SHIFT` and the comma key, you produce the left angle bracket (`<`); when you press the `SHIFT` and the period key, you produce the right angle bracket (`>`).

Using the following macro definition, you can change the `SHIFT` - comma key and the `SHIFT` - period key into commas and periods independent of the shifted state, thus turning your computer `SHIFT` - period and comma keys into an emulation of the typewriter keys.

```
<begdef> <shift,> , <enddef>
```

```
<begdef> <shift.> . <enddef>
```

Remember, to use the original function of the key once you have written a macro that redefines that key, you need to use the ``` (back quote) character to disable the previously defined macro in the macro definition. The following example shows you how to use the left and right angle brackets in a macro:

```
<begdef><ctrlz> ` <shift,>this text is in  
brackets` <shift.><enddef>
```

❑ To open PC Tools Desktop:

Note: *PC Tools Desktop has to be running as a memory-resident program to perform this function.*

PC Tools Desktop does not allow you to use the currently defined hotkey in a macro, but you can easily use a macro to open PC Tools Desktop by the following:

- Type `<desk>` in your macro definition.

Inserting `<desk>` in a macro opens PC Tools Desktop independently of the current hotkey sequence. The example below shows you a macro that will open PC Tools Desktop when you press `CTRL - F1`.

```
<begdef><ctrlf1><desk><enddef>
```

❑ To open a PC Tools Desktop application:

Note: *PC Tools Desktop has to be running as a memory-resident program to perform this function.*

You may use one of the application programs included in the PC Tools Desktop package more than others and want to be able to open it quickly. You can create a macro that will open any application.

```
<begdef><ctrlf2><desk>CA<enddef>
```

In this example, CTRL - F2 opens the Algebraic Calculator.

❑ To open other applications:

Note: PC Tools Desktop has to be running as a memory-resident program to perform this function.

You can open other programs using a macro just as easily as you can open PC Tools Desktop, but there is a small difference. The following is an example of a macro used to automatically run PC Tools Utilities' Central Point Backup:

```
<begdef><ctrlf3>cd\PCTOOLS<enter>CPBACKUP
<enter><enddef>
```

Note that the name of the program is not contained within angular brackets.

In the example, the key combination CTRL - F3 has been defined to change to the PC Tools directory and run Central Point Backup.

❑ To link macros together:

You can define a macro to play back other macros. Below is an example of linked macros:

```
<begdef><shiftf1>This tests one macro <enddef>
<begdef><shiftf2>calling two others<enddef>
<begdef><shiftf3><shiftf1><shiftf2><enddef>
```

- Press SHIFT - F3 to run the macro.

Your screen displays the following text:

This tests one macro calling two others.

You can link as many individual macros as you want, but you can only nest up to ten deep. The third macro in the above example is nested one deep.

❑ To insert the date and time in a macro:

The Macro Editor gives you an easy way to insert the current date and time in your macro definition by using the special key names "date" and "time." You can also define a key to insert the date and time for you. Below is an example of defining a date and time macro:

```
<begdef><ctrl><date>, <time><enddef>
```

When you press CTRL - D, the date and time is taken from the system clock and displayed in this form:

```
11-08-88, 4:30
```

Be sure the time and date are correct when you boot your computer.

❑ To add delays:

Inserting a delay into a macro definition tells the Macro Editor to pause during playback for a specified period of time. You can specify time increments from 1/10 of a second to 256 hours.

Delays are useful in a variety of applications. You can use a macro delay in your telecommunications program to dial a database and retrieve information you need at night when the rates are lowest. Delays are also useful for creating online demos or help screens. You can define a macro to delay for a specified amount of time after each page of text appears on the screen and then continue to the next page when the time has elapsed.

Macros are written with delays in the following form:

```
<cmd>dn<enter>
```

An example of a macro with a delay is shown below:

```
<begdef><ctrlf4>wait four seconds. . .  
<cmd>d4<enter>Done<enddef>
```

Pressing CTRL - F4 causes the message "Done" to run after a 4-second delay.

The labels used in the delay are defined below:

cmd: stands for command, telling the Macro Editor the next few entries are commands instead of key definitions. The cmd label is not generated by a key sequence; you must type the label yourself.

d: stands for delay.

n: stands for the length of the delay. The length of the delay is typed in a specified format: hh:mm:ss.t (hours, minutes, seconds, tenths of seconds). Below are some examples of time-increment formats:

10:0:0	10-hour delay
9:0	9-minute delay
10	10-second delay
.5	half-second delay

enter: stands for the tag that must always end a delay. The Enter code is part of the macro and is played back.

❑ To interrupt a delay:

- Press ESC to end a delay and play back the rest of the macro.

❑ To create forms-entry delays:

With forms entry (fill-in-the-blanks) you can delay a macro to enter specific information. For example, you can create a macro to automatically do a directory listing with a fill-in-the-blank that asks you for a disk drive. The two types of forms entry are fixed-length and variable-length.

❑ To create fixed-length fill-in-the-blanks:

When you know that the length of the information you are entering is always the same, fixed-length fill-in-the-blanks are useful. Some examples of fixed-length pieces of information are selections from a menu, disk drives, and dates. Here is an example of a macro that will execute the DOS Dir (directory) command after allowing you to fill in the drive letter.

1. Press ALT and the + key to mark the beginning of your macro. <begdef> is automatically displayed.
2. Press the key(s) you want to use, for this example, use CTRL and R, and then type dir and leave a space.
3. Press the CTRL key and the] key.
The ffld label (fixed-field label) is displayed.
4. Type the # character and press CTRL and] again.
The # character does not appear during macro playback. It is used to indicate the fixed length of the field, in this case, one character, although you can specify a longer field by using more characters. You can use any character; # is arbitrary.

5. Type a colon and press F7, then ENTER.
6. Press ALT and the - key to mark the end of the macro.
<enddef> is automatically displayed.

The macro you type looks like this:

```
<alt><+><ctrl><r>dir <ctrl><]>#<ctrl>  
<]>:<enter><alt><->
```

The macro is displayed on the screen like this:

```
<begdef><ctrlr>dir <ffld>#<ffld>:<enter><enddef>
```

❑ To run the macro:

1. Press ESC to go back to the DOS prompt.
2. Press CTRL - R.
The Macro Editor generates "dir," leaves a space, and pauses so you can enter a disk-drive specifier (a, b, or c). After you type in the letter, the macro continues and DOS displays the appropriate directory listing.

❑ To create variable-length fill-in-the-blanks:

You can also create a macro that allows you to enter information of varying lengths. Here is an example of a macro that will execute the DOS Dir (directory) command after waiting for you to enter a file name specifier.

1. Press ALT and the + key to mark the beginning of your macro.
<begdef> is automatically displayed.
2. Press the key(s) you want to use, then type dir and a space.
For this example, use CTRL and F.
3. Press the CTRL key and the - key.
The vfld label (variable-field label) is displayed.
4. Type .. and press CTRL and - again.
The two periods are simply place holders for you to insert whatever you want in the field during macro playback. Any character can be used as a place holder to indicate that information can be entered in the macro.

5. Press ALT and the - key to mark the end of the macro.
<enddef> is automatically displayed.

The macro you type looks like this:

```
<alt><+><ctrl><f>dir <ctrl><->..<ctrl>  
<-><enter><alt><->
```

The macro is displayed on the screen like this:

```
<begdef><ctrlf>dir <vfld>..<vfld><enter><enddef>
```

 **To run the macro:**

1. Press ESC to go back to the DOS prompt.
2. Press CTRL and the F key.
The Macro Editor generates "dir," leaves a space, and pauses so you can type in a file name. After you type in the file name, the macro continues.
You have to press the ENTER key to get a directory display when using variable-field macros. ENTER is not part of the text copied to your program.

Macro Editor
Supported Keys

Below is a list of all keys used to define macros in the Macro Editor. It is recommended that you use CTRL instead of ALT keys inside PC Tools Desktop since the ALT key is used to pull down menus and choose commands. The ALT key can be used in other programs.

Key	Shift	Alt	Control
A	A	ALT A	CTRL A
B	B	ALT B	CTRL B
C	C	ALT C	
D	D	ALT D	CTRL D
E	E	ALT E	CTRL E
F	F	ALT F	CTRL F
G	G	ALT G	CTRL G
H	H	ALT H	CTRL H
I	I	ALT I	CTRL I
J	J	ALT J	CTRL J
K	K	ALT K	CTRL K
L	L	ALT L	CTRL L
M	M	ALT M	CTRL M
N	N	ALT N	CTRL N
O	O	ALT O	CTRL O
P	P	ALT P	CTRL P
Q	Q	ALT Q	
R	R	ALT R	CTRL R
S	S	ALT S	
T	T	ALT T	CTRL T
U	U	ALT U	CTRL U
V	V	ALT V	CTRL V
W	W	ALT W	CTRL W
X	X	ALT X	CTRL X
Y	Y	ALT Y	CTRL Y
Z	Z	ALT Z	CTRL Z
1	!	ALT 1	
2	@	ALT 2	CTRL 2
3	#	ALT 3	
4	\$	ALT 4	
5	%	ALT 5	

6	^	ALT 6	CTRL 6
7	&	ALT 7	
8	*	ALT 8	
9	(	ALT 9	
0	)	ALT 0	
F1	SHIFT F1	ALT F1	CTRL F1
F2	SHIFT F2	ALT F2	CTRL F2
F3	SHIFT F3	ALT F3	CTRL F3
F4	SHIFT F4	ALT F4	CTRL F4
F5	SHIFT F5	ALT F5	CTRL F5
F6	SHIFT F6	ALT F6	CTRL F6
F7	SHIFT F7	ALT F7	CTRL F7
F8	SHIFT F8	ALT F8	CTRL F8
F9	SHIFT F9	ALT F9	CTRL F9
F10	SHIFT F10	ALT F10	CTRL F10
-	-	<END DEF>	<V FLD>
=	+	<BEG DEF>	
[	{		CTRL [
]	}		<F FLD>
;	:		
'	"		
\	|		CTRL \
/	<		
0	>		
/	?		
ESC			
TAB	SHIFT TAB		
BKS			CTRL BKS
ENTER			CTRL ENTER
*			CTRL PRT
HOME			CTRL HOME
UP			
PGUP			CTRL PGUP
RGT			CTRL RGT
LEFT			CTRL LEFT

11. Macro Editor

END			CTRL END
DN			
PGDN			CTRL PGDN
INS			
DEL			
KEYPAD 9			
KEYPAD 8			
KEYPAD 7			
KEYPAD 6			
KEYPAD 5			
KEYPAD 4			
KEYPAD 3			
KEYPAD 2			
KEYPAD 1			
KEYPAD 0			
KEYPAD PERIOD			
KEYPAD +			
KEYPAD -			
DATE			
FFLD			
TIME			
VFLD			
DESK			
CMD			
BEGDEF			
ENDDEF			

12. Clipboard

Among the most useful of the PC Tools Desktop features are the copy and paste functions. You can not only copy and paste in many of the PC Tools Desktop applications; for example, Notepads, Outlines, and the Macro Editor; but when you are running PC Tools Desktop as a memory-resident application, you can also use the Clipboard application to copy and paste anything appearing on your screen between your other programs and PC Tools Desktop applications or from one program to another.

The Clipboard is a temporary storage place for text transferred with Cut and Copy commands. Once text has been placed on the Clipboard with Cut or Copy command, you can open the Clipboard application to edit its contents. Although you don't have to open the Clipboard to use copy and paste operations (see "Using Hotkeys" later in this chapter), opening the Clipboard allows you to edit the text on the Clipboard before you paste it in another location.

Using the Clipboard, you can transfer data between DOS applications. For example, you can copy data from a spreadsheet and then transfer it to a report in Notepads or another word processor.

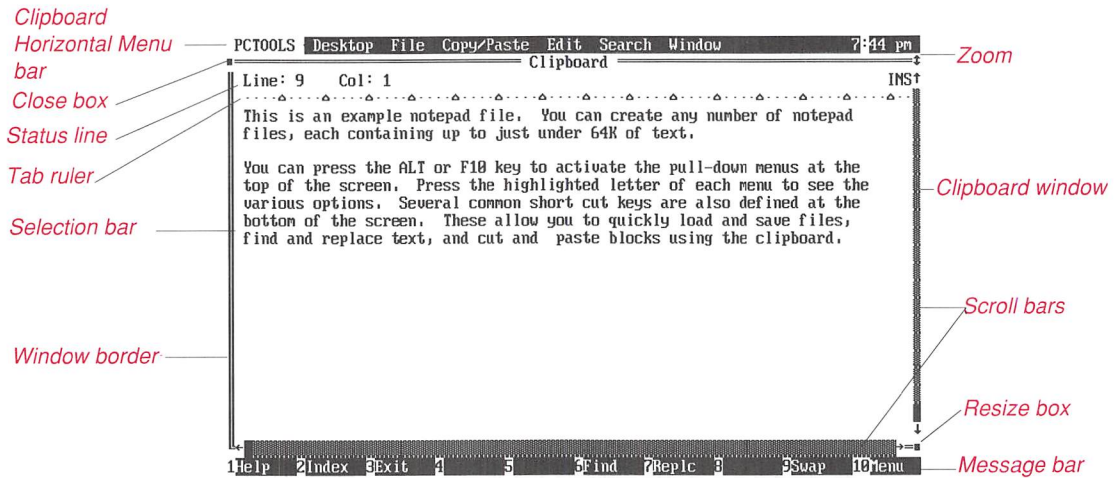
The Clipboard expands to accommodate fairly large blocks of text, and all window scrolling capabilities are available to edit files on the Clipboard. The text the Clipboard can handle, however, is limited to 4K in size (approximately 80-90 lines of text). If you attempt to copy or cut a larger block of text, the Clipboard displays a warning message.

***Note:** The Clipboard only copies text; it does not copy graphics.*

Opening the Clipboard

Once Clipboard is chosen from the PC Tools Desktop pull-down menu, the Clipboard window (shown below) appears, allowing you to view and edit the contents of the Clipboard.

12. Clipboard



The Clipboard screen contains the following parts:

Clipboard Horizontal Menu Bar: contains the names of pull-down menus and a time display in the far-right corner.

Close Box: used with the mouse to close a window.

Status Line: shows what line and column the cursor is on, the file name, and whether you are in insert or overtype mode. When "INS" appears in the upper-right corner of the window, you are in insert mode; otherwise, you are in overtype mode.

Tab Ruler: used to see tab stops. It appears in the Clipboard window when the Tab Ruler Display has been turned on in Notepads or Outlines and saved with the Save Setup command at the time the macro is created.

Selection Bar: blank space in the first column used with the mouse to select a line of text.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Message Bar: is the bar across the bottom of the screen. The Message Bar has two functions: it shows a message to guide you through using the Clipboard when either a menu or command has been highlighted or selected and it also displays a row of shortcut keys (displayed when no command or menu has been highlighted or selected) that can be activated with function keys (shown in white on a black background). For example, to find a

character string, just press F6 or click on the Find command in the Message Bar with the mouse; this brings up the Find dialog box.

Resize Box: used with the mouse to resize the window.

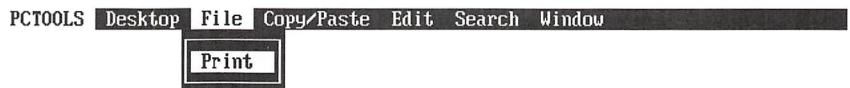
Scroll Bars: used with the mouse to move, or “scroll,” through the file.

Clipboard Window: contains the text of the file you've placed on the Clipboard.

Zoom Box: used with the mouse to expand the active window to full-screen size or to reduce it to the size it was before it was zoomed. You can also use the Zoom command in the Window menu.

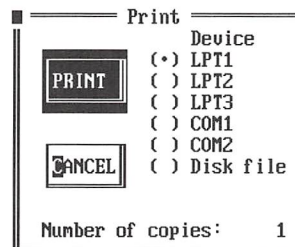
Printing the Contents of the Clipboard

The File pull-down menu contains the Print command so that you can print the contents of the Clipboard.



❑ To print the contents of the Clipboard:

1. Choose Print from the File menu.
The Print dialog box appears.



2. Select any of the following Print options:

LPT (1, 2, or 3): selects which one of the parallel printer ports to print your file to. Printer port number 1 is the default.

COM (1, 2): selects which one of the serial printer ports to print your file to.

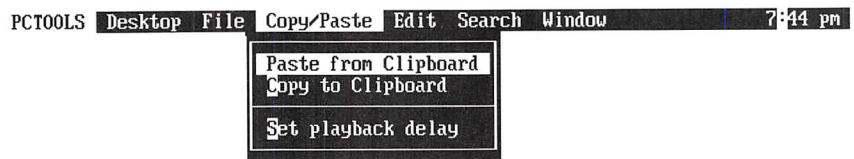
Disk File: formats and saves the text for printing and writes the file to disk for printing at a later date. The print file name consists of the same file name with a .PRT extension.

Number of Copies: specifies the number of copies you want to print.

3. Select the Print command button to start printing. While you are printing either to disk or to the printer, a message appears in the status line.

Copying to and Pasting from the Screen

Once you have loaded PC Tools Desktop as a memory-resident application, you can transfer information between different applications using the commands on the Copy/Paste menu shown below. You can copy to and paste from whatever was on the screen before you opened the Clipboard application. For example, you can copy a section of your spreadsheet to the Clipboard then paste it into a financial report you are working on with your word-processing program.



❑ To paste from Clipboard:

Pasting allows you to insert the contents of the Clipboard into the application underneath the Clipboard window. Any text placed in the Clipboard will remain there until you replace it with other text or reboot the computer. The contents of the Clipboard are pasted at the cursor position. If you don't have an application open, the contents of the Clipboard are copied to DOS.

- Choose Paste from Clipboard from the Copy/Paste menu. The Clipboard window disappears, and the Clipboard text is placed in the underlying application (or screen) at the cursor position.

You can insert the copied text from the Clipboard as many times as you wish.

❑ To copy to Clipboard:

To put information on the Clipboard, use the Copy to Clipboard command. When you copy text from an application on the screen to the Clipboard, the selected text appears in both locations. Most applications require that you first select the information you want to copy.

Remember: this procedure calls for PC Tools Desktop to be resident. From whatever application you are currently using, perform the following:



1. Hotkey into PC Tools Desktop.
2. Choose Copy to Clipboard from the Copy/Paste menu. The Clipboard window disappears, leaving you in your previous screen to select text from the screen.
3. Press the UP, DOWN, RIGHT, and LEFT arrow keys to position the cursor where you want to start copying text and press ENTER. (The cursor, in this case, is a large block cursor, like the mouse cursor.)
4. Press the UP, DOWN, RIGHT, and LEFT arrow keys to mark the block of text to be copied. The block is highlighted.
5. Press ENTER to copy the selected text to the Clipboard. The selected text is copied to the Clipboard, and the Clipboard automatically opens for you to edit its contents.



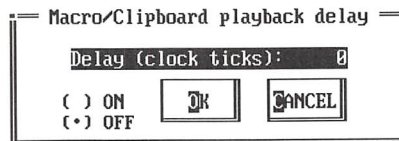
1. Hotkey into PC Tools Desktop.
2. Choose Copy to Clipboard from the Copy/Paste menu. The Clipboard window disappears, leaving you in your previous screen to select text from the screen.
3. Place the mouse pointer where you want to start copying text.
4. Drag the mouse over the block you want to copy. The highlighted block of text is copied to the Clipboard, and the Clipboard automatically opens for you to edit its contents.

Note: Usually, the formatting for your text is not stored on the Clipboard, but this varies from application to application.

❑ To set the playback delay:

If you attempt to paste from the Clipboard to an application such as Microsoft Word, and some of the characters don't show up or your computer beeps, it is because the contents of the clipboard are being sent to the application too fast for it to process. The Set Playback Delay command in the Copy/Paste menu can solve such a problem. Selecting this command activates a dialog box where you can enter a delay time that will control how fast a Clipboard paste occurs. The delay time is measured in eighteenths ($1/18$) of a second. The number is the additional $1/18$ th-second time periods to insert between each character pasted. A value of zero will send a character every $1/18$ th second.

As the dialog box indicates, the playback delay for the clipboard is the same as for macros, so setting the playback delay for one application sets it for both.



Editing Text on the Clipboard

When copied text is stored on the Clipboard, you may want to edit it. You can edit text using the keyboard or the mouse before you paste it into another location.

❑ To edit text using the keyboard:

The basic editing operations and keys that perform them are explained in the *Notepads* chapter.

The Edit pull-down menu below contains the following commands for editing text on the Clipboard.



Erasing, Marking and Unmarking Blocks of Text

Once information has been copied onto the Clipboard, you can edit it. Since you may want to edit large portions of text, the Erase Block, Mark Block and Unmark Block commands are available to you.

❑ To erase a block:



1. Place the cursor where you want to start erasing text.
2. Choose Mark Block from the Edit menu.
3. Use the UP, DOWN, LEFT, and RIGHT arrow keys to mark the block.
The selected text is highlighted.
4. Choose Erase Block.

or

1. Place the cursor where you want the block to start.
2. Hold down the SHIFT key, then press the arrow keys to mark the block. (You can use either the keypad arrow keys or the cursor arrow keys.)
The selected text is highlighted.
3. Choose Erase Block to erase the block.



1. Place the mouse pointer where you want the block to start and drag the mouse to mark the block.
The selected text is highlighted.
2. Choose Erase Block.

To mark a block:



1. Place the cursor where you want the block to start.
2. Choose Mark Block from the Edit menu.
3. Use the UP, DOWN, LEFT, and RIGHT arrow keys to mark the block.
The selected text is highlighted.

or

1. Place the cursor where you want the block to start.
2. Hold down the SHIFT key, then press the arrow keys to mark the block. (You can use either the keypad arrow keys or the cursor arrow keys.) The selected text is highlighted.



- Place the mouse pointer where you want the block to start and drag the mouse to mark the block.
The selected text is highlighted.

To unmark a block:

If you decide that the block of text you've marked is incorrect, you can unmark it.

Shortcut



- Press the ESC key to quickly unmark the block.

or

Choose Unmark Block from the Edit menu.



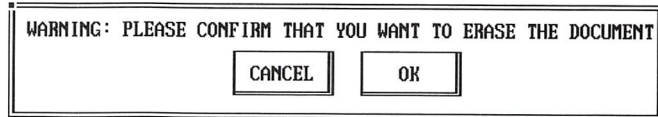
- Click the left mouse button anywhere in the window.
The highlighting goes away.

Deleting Text

The Delete All Text command deletes all of the text on the Clipboard, but does not delete the Clipboard. The Clipboard remains open, but will be empty.

❑ To delete all text:

1. Choose Delete All Text from the Edit menu.
A message box appears asking you to confirm that you want to erase all of the text.



2. Select OK to erase the document.

Inserting a File

The Insert File command allows you to merge a selected file with the file you are working on.

❑ To insert a file:

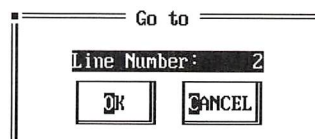
1. In the current file, place the cursor at the location you want the file to be inserted.
2. Choose Insert File from the Edit menu.
The File Load dialog box appears.
3. Select the file you want to insert using the File Load dialog box.
4. Select the Load button.
The selected file is merged with the current file and inserted at the cursor position.

Moving to a Specific Line

The line display on the status line in the upper-left corner of the Clipboard window allows you to see which line the cursor is on. To move quickly through a file or to move to a particular line, use the Goto command.

❑ To go to a specific line:

1. Choose Goto from the Edit menu.
The Goto dialog box is displayed.



2. Type the number of the line you want to go to.
3. Select OK to go to the specified line.
The dialog box closes and the text and cursor are moved to the top of the window.

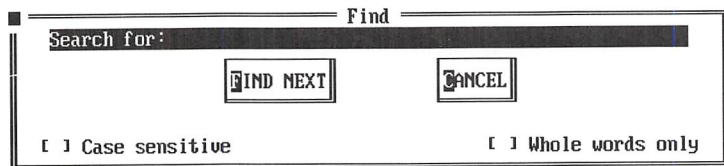
Searching in the Clipboard

While editing, you can use commands on the Search menu to find, change, or replace specified text.

❑ To find text:

The Find command searches through your file to find specified text. Beginning at the cursor, the Clipboard is searched for the specified text and stops, with the cursor positioned at the beginning of the string. You can specify a string of up to 44 characters.

1. Choose Find from the Search menu.
The Find dialog box is displayed.



2. Type the character string you want to find in the Search For text box.
(ASCII characters may be entered by holding down the ALT key and entering the decimal number for the character.)
3. Select any of the following Find options:

Case Sensitive: finds only the specified uppercase and lowercase characters. With this option turned off, text is found regardless of its capitalization.

Whole Words Only: finds whole words only, not partial words. For example, if searching for "the," "the," not "theater" will be found.

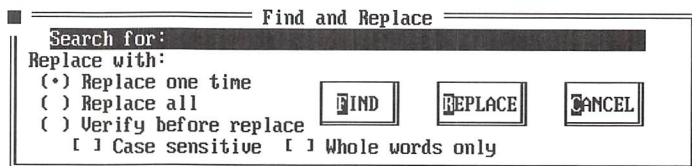
4. Select the Find Next command button.
The Clipboard is searched for the specified text and stops, with the cursor positioned at the beginning of the string.

The dialog box is displayed until you close it or until the last occurrence of the search text is found.

❑ To replace text:

The Replace command searches the file for a specified character string and replaces it with text you specify. You can specify a character string of up to 44 characters. With the Replace command, you can either review each occurrence of the string and decide whether to change it, or replace all occurrences of the text automatically.

1. Choose Replace from the Search menu.
The Find and Replace dialog box is displayed.



2. Type the text you want to replace in the Search For text box.
3. Type the replacement text in the Replace With text box.
4. Select any of the following Replace options:

Replace One Time: finds and replaces the next occurrence of the search text.

Replace All: replaces all the occurrences of the found text with the specified text from the cursor position to the end of the file.

Verify Before Replace: searches text from the cursor position to the end of the file, stopping at each occurrence of the word and replacing found text only when you press ENTER. If you press ESC, the command is canceled; pressing the spacebar skips the specified text.

Case Sensitive: finds only the specified uppercase and lowercase characters. With this option turned off, text is found regardless of its capitalization.

Whole Words Only: finds whole words only, not partial words.

5. Select one of the Replace command buttons:

Find: finds the text, without carrying out any changes.

Replace: replaces the found text with the specified text.

The dialog box is displayed until you close it, the search and replace is finished, or choose the Cancel command button.

Copying and Pasting with the Hotkeys

Once you've loaded PC Tools Desktop memory-resident, you can copy and paste in any application or from the screen; you don't need to open the Clipboard application. Quick copying and pasting functions are available with cut and paste hotkeys. The hotkey sequence is changeable; if you want to change the hotkeys, see the *Utilities* chapter.

❏ To copy from the screen to the Clipboard:

When you copy text from the screen, text currently placed on the Clipboard is replaced by the new text from the screen. Text copied to the Clipboard from the screen can be pasted into any application.



1. Exit PC Tools Desktop.
2. Press CTRL - DEL to copy text to the Clipboard.
A block cursor appears in the center of the screen to select text.
3. Press the UP, DOWN, RIGHT, and LEFT arrow keys to position the cursor where you want to start copying text and press ENTER.
4. Press the UP, DOWN, RIGHT, and LEFT arrow keys to mark the block of text to be copied.
The block is highlighted.
5. Press ENTER to copy the selected text to the Clipboard.
The selected text is copied to the Clipboard. To edit the Clipboard's contents, hotkey into PC Tools Desktop and open the Clipboard.



1. Exit PC Tools Desktop.
2. Press CTRL - DEL to copy text to the Clipboard.
A block cursor appears in the center of the screen to select text.
3. Place the mouse pointer where you want to start copying text and press the mouse button.

4. Drag the mouse over the block you want to copy and release the mouse button.
The selected text is copied to the Clipboard. To edit the Clipboard's contents, hotkey into PC Tools Desktop and open the Clipboard.

❑ To paste from the Clipboard to the screen:

PC Tools Desktop temporarily keeps the copied screen in the Clipboard until you copy something new over it. When something new is copied into the Clipboard, it becomes the contents of the Clipboard. When you are in any window, including a Desktop window, you may do the following:

1. Place the cursor wherever you want the copied text to be inserted.
2. Press CTRL - INS.
The copied text from the Clipboard is pasted at the insertion point.

**Using the Clipboard
with Applications
Launched from PC
Shell**

You can use the Clipboard's copy and paste functions in applications launched from PC Shell's Applications menu using the following configuration:

- Install and run Desktop resident (type `DESKTOP /R`).
- Run PC Shell as a DOS shell (type `PCSHELL`) after Desktop.

Launch your favorite applications from the Applications menu, then use the Clipboard hotkeys to cut and paste.

Reminder: If you already have PC Shell installed resident before Desktop, you can also run PC Shell nonresident after Desktop.

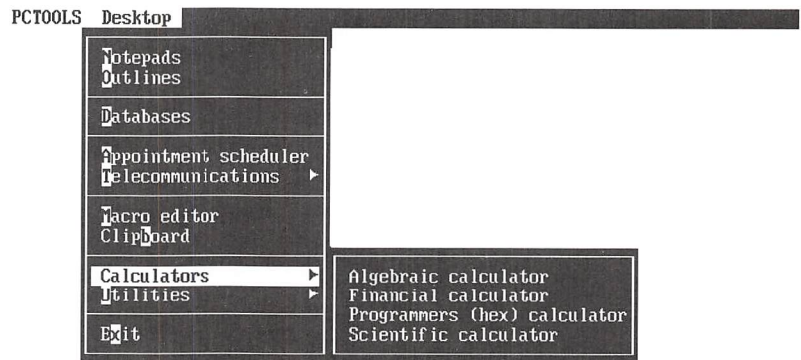
13. Calculators

PC Tools Desktop has four calculators for a wide variety of uses. Included are a simple Algebraic Calculator, a Scientific Calculator that enables you to perform simple as well as advanced calculations, a complete Financial calculator, and a Programmer's calculator. The Scientific, Financial, and Programmer's Calculators emulate most functions of calculators manufactured by Hewlett-Packard (the HP-11C, 12C, and 16C, respectively).

Since PC Tools Desktop can be memory-resident, you have access to your choice of calculators from any program.

Selecting a Calculator

Once Calculators is selected from the PC Tools Desktop pull-down menu, the Calculators submenu is displayed. The following illustration shows you what you'll see when you choose Calculators from the PC Tools Desktop menu:

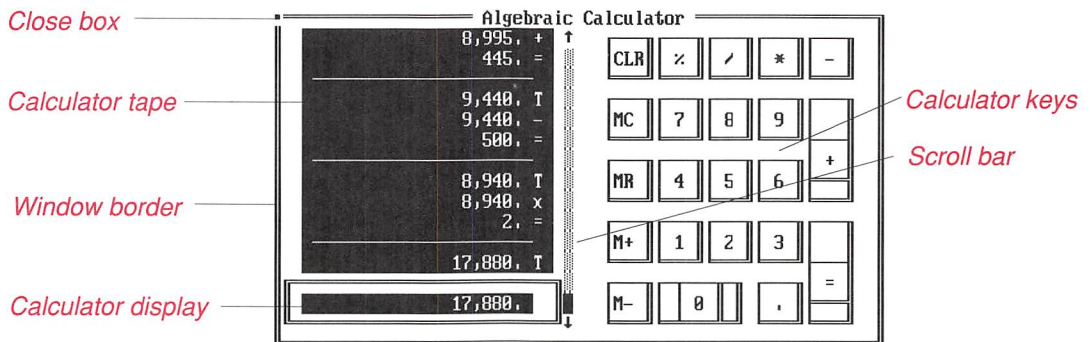


- Select the calculator you want to use.

14. Algebraic Calculator

The Algebraic Calculator operates like a standard printing calculator. Use the keys on the numeric keypad on the right of your keyboard, use the numbers along the top of your keyboard, or click on the “keys” on the screen with a mouse to add, subtract, multiply and divide. When you choose Algebraic Calculator from the menu, the Algebraic Calculator appears in its window. As you enter numbers and perform operations, the numbers appear first in the display and then on the “tape.”

Note: The calculator tape is approximately 1000 lines long. When the tape becomes full, the lines at the top of the tape will be lost.



The parts of the Algebraic Calculator window are described below:

Close Box: used with the mouse to close a window.

Calculator Tape: where up to 12 lines of calculations appear. You can scroll the tape with the keys or the mouse to display numbers.

Window Border: indicates the active window with a double border. The inactive window has a single border.

Calculator Display: where numbers appear as you enter them. Numbers can also be “scrolled” into the display area to be edited.

Calculator Keys: used with the mouse to perform computations.

Scroll Bar: used with the mouse to move, or “scroll,” through the numbers appearing on the tape.

Note: You may have to press the NUM LOCK key to use all the numbers on your numeric keypad.

Performing Calculations

The basic calculator operations and the keys that perform them are contained in the following table:

To	Keyboard	Mouse
Add	+	+
Subtract	-	-
Multiply	* or X	*
Divide	/	/
Total or equal	ENTER or =	=
Clear	C	CLR
Calculate percentages	%	%
Add or subtract a number from memory	M then + or -	M+ or M-
Recall a number from memory	M then R	MR
Erase a number from memory	M then C	MC
To set the number of decimal places	D then the number	
Toggle the comma display	,	,

The Algebraic Calculator operates like a printing calculator. Enter a number, followed by the operation, subsequent number, and equal sign. Each number appears in the calculator display, and as you continue to enter numbers, they are displayed on the tape. You can calculate as many numbers as you want; however, the tape only shows up to 12 lines at a time.

The Algebraic Calculator has an additional feature related to calculations known as the “automatic constant.” Under this format, the last numbered entered before an arithmetic operator, such as + or *, is saved in temporary memory and can be applied in calculations. The automatic constant is activated only after pressing two or more arithmetic operator keys in a row, or after pressing a function key and the = key.

The following example illustrates the automatic constant feature:

Keys Entered	Constant	What the Calculator Does
123 + 100 - =	100	$123 + 100 - 100 = 123$
5 + 9 + + + =	9	$5 + 9 + 9 + 9 + 9 = 41$
9 - - - =	9	$9 - 9 - 9 - 9 = -18$

Remember that structuring a calculation under the normal format — a number followed by an operator followed by a number and concluding with the = key — will yield a subtotal and clear the automatic constant so that it won't affect your calculation.

The following two examples illustrate how to perform calculations:

Problem: Solve $5 + 7$

Solution:

1. Press 5.
The number 5 appears in the calculator display.
2. Press + (the operation).
The number and operation are displayed on the tape as well as the display.
3. Press 7.
The number 7 appears in the display, overwriting the 5.
4. Press ENTER.
The calculation is automatically performed and the result appears in the display as well as on the tape above the display. The operators (+, -, =, etc.) are saved to remind you what operation you performed and to show you the total (T).

Note: An "M" appears to the left of the calculator tape to indicate that the memory is non-zero.

Problem: Determine the total amount of a sale if the purchase amount is \$29.00 and the sales tax rate is 6%.

Solution:

1. Press 29.
The number 29 appears in the calculator display.

2. Press +.
3. Press 6.
The number 6 appears in the display, overwriting the 29.
4. Press %.
The Algebraic Calculator adds 6 percent of 29 to 29 and returns the correct answer, \$30.74.

To edit the tape:

As you type, the calculations are displayed on the tape. The tape display records all the calculations. You can edit any number you've entered from the keyboard; calculated results are not editable. All editable numbers will appear in the tape display where they can be edited.

You can scroll through the tape using the scroll bar or the UP and DOWN arrow keys. You can edit and recalculate the tape. If you make a mistake in a lengthy calculation and don't realize it until later, you can go back and make a correction. Scrolling the tape puts the numbers into the calculator display where you can edit them. You can edit a number only when it appears in the display area.

1. Press the UP and DOWN arrow keys to move the numbers into the calculator display.

or

Scroll through the numbers on the tape using the mouse.

2. Type the number you want to change.
The new number overwrites the old number in the display, and the numbers are recalculated immediately after the number in the display is changed.

Clear Display

If you make a mistake and want to retype the number appearing in the display, you can clear the display. To clear the number in the display perform the following task:

To clear the display:

- Choose Clear Display from the Options menu, press F4, or press the C key.
The number appearing in the display disappears.

Erase Tape

If you want to clear all the numbers from the tape and start over, perform the following:

❑ To erase the tape:

- Choose Erase Tape from the Options menu or press F5.
The entire tape is erased.

Copy to Clipboard

You may want to use your calculations in a document; for example, you might want to prepare a sales report in Notepads, use your calculations in the text, then print the report. You can insert the results of your calculations into any application using the Clipboard.

❑ To copy to the Clipboard:

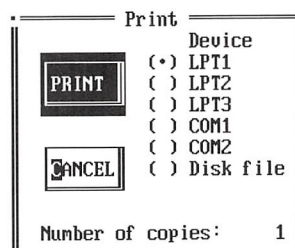
- Choose Copy to Clipboard from the Options menu.
Up to 100 lines of the calculator tape are copied to the Clipboard. (If the tape has more than 100 lines, only the last 100 lines are copied.) You can open the Clipboard to edit the copied calculations if you want.

Print Tape

If you want a copy of your calculations, you can print the calculator tape or save it to a disk file using the Print Tape command.

❑ To print the tape:

1. Choose Print Tape from the Options menu.
The Print dialog box appears.



2. Select any of the following Print options:

LPT (1, 2, or 3): selects which one of the parallel printer ports to print the tape to. Printer port number 1 is the default.

COM (1, 2): selects which one of the serial printer ports to print the tape to.

Disk File: formats and saves the tape for printing and writes the tape to disk for printing at a later date. The print file name is CALC.PRT, and PC Tools Desktop saves it in the current directory.

Number of Copies: specifies the number of copies you want to print.

3. Select the Print command button to start printing. While you are printing either to disk or to the printer, a message appears in the status line.

Wide Display

You can toggle the Algebraic Calculator between a full-screen calculator showing the tape display and the keypad or a smaller version showing the tape display area only. Both versions are fully functional.

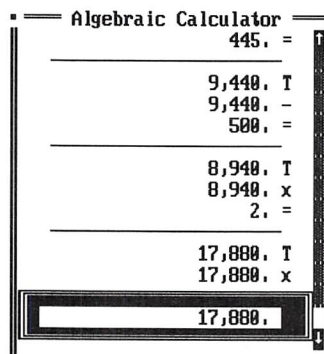
☐ To display the full calculator and the keypad:

- Choose Wide Display from the Options menu. The full-screen calculator is displayed and a checkmark appears to the left of the command.

The smaller version of the Algebraic Calculator provides all the functions of the full calculator; however, it takes up less room on your screen.

☐ To display the smaller version of the Algebraic Calculator:

- Choose Wide Display from the Options menu. The small-screen calculator is displayed (shown in the following illustration), without the keypad display.



15. Financial Calculator

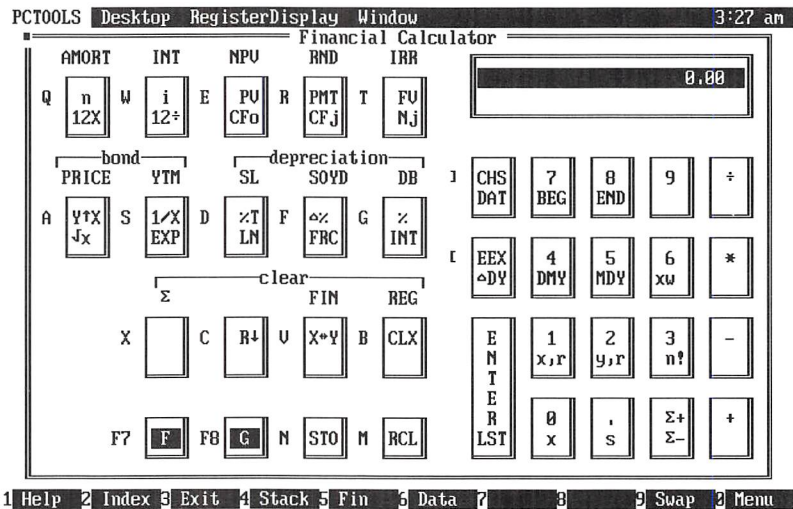
The Financial Calculator is designed to emulate the financial functions of the HP-12C calculator manufactured by Hewlett-Packard.

This section explains how the functions of the HP-12C calculator are emulated in PC Tools Desktop. If you are familiar with using the HP-12C, you will find that performing the same functions with the PC Tools Desktop version is easy. If you do not know how to use an HP-12C calculator, this section is designed to familiarize you with how to use it.

Central Point Software, Inc. does not guarantee that the keystroke sequences and the results given are correct or suitable for your purposes. You are responsible for decisions you make when using the Financial Calculator.

This section is not intended as a comprehensive tutorial of the HP-12C calculator. If you want a more complete explanation of how to use the HP-12C, there are manuals available at most bookstores. In addition, we have provided an order form for a handbook at the end of this chapter.

When you choose Financial Calculator from the Calculators menu, an emulation of the HP-12C is displayed.



Understanding the Display

You must use several of the keyboard keys as well as the number keys with the Financial Calculator. Most of the keys on the Financial Calculator have more than one function. If you press the key to the left of the button on the display or click the button with the mouse, the function that appears in white (bold video on monochrome monitors) on the screen is performed.

To make using the Financial Calculator easier, this section explains how to do the following:

- Use the keyboard
- Use the F and G keys
- Set the number of decimal places
- Turn "c" on or off in the display
- Turn "d.my" on or off in the display
- Turn "beg" on or off in the display



□ To use the keyboard:

This chapter refers to the keys by their functional names; the actual keys with their corresponding financial functions are displayed in the following table:

Press	To perform function
Q	n (number of periods)
W	i (interest rate)
E	PV (present value)
R	PMT (payment)
T	FV (future value)
A	Y^X (power)
S	$1/X$ (reciprocal or inverse)
D	%T (percent of total)
F	$\Delta\%$ (percent difference)
G	% (percent)
C	R↓ (roll down)
V	$X \leftrightarrow Y$ (exchange X and Y registers)
B	CLx (clear)
F7	F
F8	G
N	STO (store number)
M	RCL (recall stored number)
]	CHS (change sign)
[	EEX (exponent)
ENTER	Enter
&	$\Sigma+$ (sum of--used in statistics)
0 - 9	0 - 9
+	+
-	-
/	\div
*	\times (multiply)

❑ To use the F and G keys:

The F and G keys in the lower-left portion of the calculator display allow you to perform additional functions.

Note: Select and release the F or G key before selecting the next key.

- Press the F7 key or click on the F key on your screen to perform the functions at the top of the keys (these functions appear in red as the default color on a color monitor).
- Press the F8 key or click on the G key on your screen to perform the functions on the lower part of each key (displayed in blue as the default color on color monitors).

❑ To set the number of decimal places:

The Financial Calculator uses 12 digits of precision for all calculations no matter how many places you want to display. You can set up to nine decimal places.

1. Select the F key and then the desired number of decimal places.

For example, to set the display to four decimal places, select the F key and then press 4. If you want to use scientific notation, select the F key and press . (period).

❑ To turn “c” on or off in the display:

The “c” in the display signifies continuous compounding during financial calculations involving partial periods.

- Select STO EEX to turn on or off the “c” in the display.

❑ To turn “d.my” on or off in the display:

When you see “d.my” in the display, any calendar date you key in must be in Day.MonthYear format. When this symbol does not appear in the display, all dates must be in Month.DayYear format. To turn “d.my” on or off in the display, perform the following task:

- Select G and then the DMY key. This turns D.MY on. To toggle off, select G and MDY key.

❑ To turn “beg” on or off in the display:

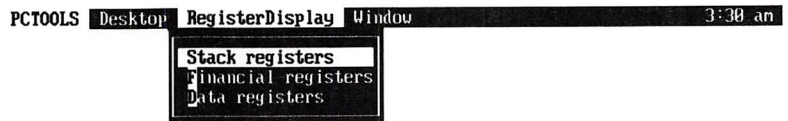
When you see “beg” in the display, any loan or annuity calculation is performed assuming each payment is made at the beginning of the payment period. When you don't see “beg” displayed, the payment is assumed to be due at the end of the payment period. To turn “beg” on or off in the display, perform the following:

- Select G and then the BEG key to display “beg.”
- Select G and then the end key to turn “beg” off.

Understanding the Registers

The Financial Calculator contains three kinds of registers that store different kinds of numeric information: the stack registers, the financial registers, and the data registers. The registers continue to store numbers until the computer is turned off or until you exit the calculator application or until you clear the registers.

To view the contents of any of the registers, choose the appropriate kind of register from the Register Display menu shown below.



The Stack Registers: perform ordinary arithmetic (addition, subtraction, multiplication, division) and are connected in a way that allows you to do lengthy calculations easily by stacking the intermediate results until you need them.

REGISTER	
T	0.00
Z	0.00
Y	0.00
X	0.00
LSTX	0.00

The Financial Registers: calculate financial quantities such as mortgage payments. The calculator uses four of the numbers to calculate the fifth.

The names of each of the financial registers are identified below:

REGISTER		
n		0.00
i		0.00
PV		0.00
PMT		0.00
FV		0.00

n: number of periods.

i: interest rate.

PV present value.

PMT payment.

FV future value.

The Data Registers: named with numbers from 0 to 9 and from .0 to .9. Use these names when storing numbers in the registers.

REGISTER			REGISTER		
R0		0.00	R.0		0.00
R1		0.00	R.1		0.00
R2		0.00	R.2		0.00
R3		0.00	R.3		0.00
R4		0.00	R.4		0.00
R5		0.00	R.5		0.00
R6		0.00	R.6		0.00
R7		0.00	R.7		0.00
R8		0.00	R.8		0.00
R9		0.00	R.9		0.00

Performing Arithmetic Operations

The Financial Calculator can be used to perform simple as well as complex calculations; however, performing simple arithmetic calculations is done differently with the Financial Calculator than with an Algebraic Calculator.

This section shows you how to use the Financial Calculator to perform the following tasks:

- Add
- Subtract
- Multiply
- Divide

- Calculate percentages
- Change the sign
- Store and recall numbers

Performing arithmetic operations involves combining two or more numbers. On most calculators (including the Algebraic Calculator included in PC Tools Desktop) the procedure for adding 3 and 3 is the following: $3 + 3 =$.

But since the Financial Calculator emulates the HP-12C, the arithmetic operations are performed in the following way:

1. Enter the first number and press ENTER.
For example, press 3 then ENTER.
2. Enter the second number and press the operation key (+ or -, etc.). For example, press 3 then the + key.

When you perform multiple calculations, each intermediate result becomes the first number of your next calculation. You don't need to enter in that number or press ENTER; just type in the second number and press the operation key.

❑ To add:

Compute $34 + 169 + 51$

1. Type 34, and press ENTER.
2. Type 169 and press the + key.
3. Type 51 and press the + key.

❑ To subtract:

Compute $75 - 37 - 13.9$

1. Type 75 and press ENTER.
2. Type 37 and press the - key.
3. Type 13.9 and press the - key.

The - key means subtract what's in X from what's in Y. The last number you type goes into the X register, and the number that was in X gets pushed into the Y register.

❑ To multiply:

Compute $1.2 * 45 * 9$

1. Type 1.2 and press ENTER.
2. Type 45 and press the * key.
3. Press 9 and press the * key.

❑ To divide:

Compute $(34 + 169) \div 51$

1. Type 34 and press ENTER.
2. Type 169 and press the + key.
3. Type 51 and press the / key.

❑ To calculate percentages:

Compute 3.5% of 29.76

1. Type 29.76 and press ENTER.
2. Type 3.5 and press the % key.

❑ To change the sign of a number:

Compute $(1.2 \times 45) / (-33)$

1. Type 1.2 and press ENTER.
2. Type 45 and press the * key.
3. Type 33 and select CHS (the | key) and then the / key.
The - key is used for subtraction; to change the sign of a number, always use CHS.

❑ To store and recall numbers:

Use STO and RCL to save and recall numbers stored in the registers. You also need to use the name of a data register (0 through 9 or .0 through .9) or a financial register (n, i, PV, PMT, or FV) when using these keys.

❑ **To store a number:**

Compute $(1.2 \times 45) / (-33)$ and store the result in register 0 and in the PV register.

1. Type 1.2 and press ENTER.
2. Type 45 and press the * key.
3. Type 33 and select CHS (press the | key).
4. Press the / key and select STO (press the N key).
5. Type 0 and select PV (press the E key).

When storing a number into one of the five financial registers, press the name of the register you want; you don't need to select STO first.

❑ **To recall a number:**

Compute $6 \times ((1.2 \times 45) / (-33))$ by recalling the result of the previous problem.

1. Select RCL (press the M key) and then select PV (press the E key).
 2. Type 6 and press the * key.
- or
1. Select RCL (press the M key) and type 0.
 2. Type 6 and the * key.

Unlike STO, when you want to recall to the X register a copy of what's in one of the five financial registers, you must select RCL, just as with the numbered registers.

Performing Financial Calculations

You can use the Financial Calculator to perform the following:

- Calculate simple interest
- Calculate compound interest
- Calculate annual percentage rates

Simple Interest

To calculate simple interest on a 365-day basis, store the principal amount in the PV (present value) register and the annual interest rate in the i (interest rate) register. Store the number of days the interest is accruing in the n register.

❑ To calculate simple interest:

What is the interest on a \$80,000 loan at 12% interest over 15 days?

1. Select the F (press F7) key then the REG key (press B) to clear the financial registers.
2. Type 80000 and select PV (press E).
3. Type 12 and select i (press w).
4. Type 15 and select n (press Q).
Steps 2, 3, and 4 store the appropriate numbers in their respective registers.
5. Select the F key (press F7) and select INT (press w).

Result: \$400.00, 360-day interest.

The value is negative on this interest amount to show that if the money was borrowed, this interest is owed in return.

Compound Interest

You can calculate compound interest in one of two ways: straight line or continuous. Both patterns provide the same results at the end of each period but different results at interim points. To alternate back and forth between these two methods, select STO and EEX. A little "c" appears in the display to tell you the method is the continuous method.

The two methods give the same results if you examine the interest only at the end of each defined period. When you examine the interest (the total balance owed on a loan) somewhere during the period, you get different results. Because of this you need to be careful when working with a partial compounding period (when the n register has a fraction in it). You can do this with the Financial Calculator, but only if the partial period occurs at the beginning of the loan.

Whenever you solve for the number of periods (n) required in a loan situation, the Financial Calculator always rounds up to the next whole period. To double-check your result, re-solve for FV (future

value) to see how much the loan would be overpaid by extending the time out to the next whole period.

❑ To calculate the annual percentage rate (APR):

The APR in any loan situation is a convenient number to quote and to compare, but it is not the actual amount of cents earned on the dollar. The actual interest earned will depend upon how often the interest is compounding.

If the compounding period is a full year, then the APR is the actual rate of accrual. If the compounding period is a month, as in most mortgages, then the interest begins to accrue on interest earned in previous months. This makes the total cents earned on a dollar of original principal over a full year slightly more than the APR figure.

Solving Financial Key (5-key) Problems

The Financial Calculator is useful in solving 5-key problems. This section shows you how to perform the following tasks:

- Use the financial registers
- Observe sign conventions
- Calculate the number of payments (n)
- Calculate interest (i)
- Calculate principal (PV)
- Calculate payments (PMT)
- Calculate remaining balance (FV)

❑ To use the financial registers:

If you want to store numbers into any of the five financial registers, type in the number and select whatever financial key you want. If after doing so you press any other financial key, the calculator will compute the value belonging in that register based upon the numbers currently in the other four registers.

For example, typing 100 and then selecting FV stores 100 in the FV register. Typing 100 and then selecting FV and PV stores 100 in the FV register and then computes PV, based upon the values in n, i, PMT, and FV.

The five financial registers are described below:

n: number of identical, sequential time periods occurring in the analysis.

i: interest rate accruing on money over each of these n periods. n and i always apply to the same period of time.

PMT: payment is the steady, once-per-period cash flow. There are n payments in any 5-key problem. This series of PMTs is what distinguishes a 5-key problem. If cash flows are not steady and level over time, it is not a 5-key problem.

PV: present value is any net cash flow that occurs at the beginning of the analysis period, other than a PMT. For a loan, this would be the beginning value of the loan, the money borrowed.

FV: future value is any net cash flow that occurs at the end of the analysis period, other than a PMT. For a loan, this is the amount of money still owed at the end of the loan period.

□ To observe sign conventions:

To correctly perform a 5-key problem with the Financial Calculator, you must observe its sign conventions.

- Use a negative number for cash flows you pay out. Use the CHS key.
- Use positive numbers for cash flows you receive.
- PV, FV, and PMT cannot have the same sign.

How To Use the Following Examples

The problems on the following pages are provided so you can practice using the functions of the Financial Calculator. Before solving any of the problems, you need to make sure the financial registers are clear.

Select the F key and then the REG key to clear the financial registers. (On the keyboard, press F7 then the B key.)

If you are using a mouse, the first column in each table shows you which key on the display to click. If you are using the keyboard, the second column shows you which keys you need to press. These keys are located to the left of the display keys. You need to enter any

numbers in the table using the keypad or number keys on your keyboard. The third column explains the functions being performed. For example, the first line of the following table is explained below:

Mouse	Select the G key and then select the END key.
Keyboard	Press the F8 key and then press the keypad 8 key.
Explanation	This designates end-of-month payments.

❑ To calculate the number of payments (n):

How many \$160 end-of-month payments will you need to pay off a \$6,000.00 auto loan at 13.5% APR?

Strategy

Type in the known PV, PMT, i, and FV and solve for n. Then recalculate FV to check to see if the loan is overpaid on the last payment. This is done because the Financial Calculator always rounds up when it calculates n.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are at month's end.
13.5 G i	13.5 F8 w	Use the G shortcut for converting an APR to monthly interest.
6000 PV	6000 E	Amount you received as a loan.
160 CHS PMT	160] R	Amount you must pay every month.
0 FV	0 T	Loan will be paid.
n	Q	Result: 49 months of payments.
FV FV	T T	Result: The last (49th) \$160.00 payment is \$2.95 too much.

❑ To calculate monthly interest rates (i):

If exactly 48 end-of-month payments of \$160 each will pay off your \$6,000.00 auto loan, what is the APR of the loan?

Strategy

Type in the known PV, PMT, n, and FV and solve for i.
Multiply the result by 12 to get the APR.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are at month's end.
48 n	48 Q	There are 48 payments.
6000 PV	6000 E	Amount you received as a loan.
160 CHS PMT	160] R	Amount you pay every month.
0 FV	0 T	Loan will be paid off.
i	w	Result: monthly rate is 1.06%.
12 *	12*	Result: the APR is 12.68%.

❑ To calculate the principal (PV):

If exactly 48 end-of-month payments of \$160 each will pay off your 13.5% APR auto loan, what was the loan amount?

Strategy

Type in the known i, PMT, n, and FV and solve for PV.
Observe the sign conventions carefully.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are at month's end.
48 n	48 Q	There are 48 payments.

13.5 G i	13.5 F8 w	APR converted to monthly rate.
160 CHS PMT	160 J R	Amount you pay every month.
0 FV	0 T	Loan will be paid off.
PV	E	Result: \$5,909.22 (amount loaned).

❑ To calculate payments (PMT):

What end-of-month payment amount will pay off your \$6,000.00 loan at 13.5% APR in 48 months?

Strategy

Type in the known PV, i, n, and FV and solve for PMT. Pay attention to what the sign conventions mean.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are at month's end.
48 n	48 Q	There are 48 payments.
13.5 G i	13.5 F8 w	APR converted to monthly rate.
6000 PV	6000 E	Amount you received as a loan.
0 FV	0 T	Loan will be paid off.
PMT	R	Result: payment is \$-162.46.

❑ To calculate remaining balance (FV):

After you have paid 24 end-of-month payments of \$160 each on your auto loan for \$6,000.00 at 13.5% APR, what is the remaining balance?

Strategy

Type in the known i , PMT , n , and PV and solve for FV . Observe the sign conventions, and remember that FV is always the balance owed after the last payment (PMT).

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are at month's end.
24 n	24 Q	Analysis after the 24th PMT.
13.5 G i	13.5 F8 w	APR converted to monthly rate.
6000 PV	6000 E	Amount of loan.
160 CHS PMT	160 | R	Amount you pay every month.
FV	T	Result: \$-3,467.63 (still owed).

Calculating Mortgages

A mortgage is a loan that is amortized (killed off) over time with regular, periodic payments. Figuring mortgages is ideal for 5-key solutions. This section shows you how to perform the following:

- Calculate simple and straightforward mortgages
- Calculate mortgages after changing the due date
- Calculate balloon payments on mortgages
- Calculate discounted mortgages
- Calculate prepaid finance charges
- Calculate second mortgages and wraparounds
- Calculate variable-rate mortgages
- Calculate amortization schedules

❑ **To calculate simple and straightforward mortgage:**

You are a lender for a \$120,000 home purchase, with \$20,000 down and the rest financed for 30 years at 14% APR with the payments in arrears. What is the payment amount? What would the payment be for a 20-year term?

Strategy

Use a simple 5-key solution.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
30 G n	30 F8 Q	(30 × 12) periods in the term.
14 G i	14 F8 w	APR converted to monthly rate.
100,000 CHS PV	100,000 J E	Amount financed (negative to you).
0 FV	0 T	Loan is paid off at the end.
PMT	R	Result: \$1,184.87 payment.
20 G n	20 F8 Q	Change the term to play "What if?"
PMT	R	Result: \$1,243.52 payment.

❑ **To calculate after changing the payment due date:**

Solve the problem above, but this time assume that each monthly payment is due at the beginning of that month. Use the BEG mode.

The keystrokes are the same as above, except the second keystroke is G BEG. The result is \$1,171.21 and \$1,229.18.

Press G BEG to display "beg." Press G END to send it away. When you see "beg" displayed, any calculation you perform using the financial keys is done assuming each payment is due at the beginning

of the corresponding payment period. When you don't see “beg” displayed, the payment is due at the end of the payment period.

❑ **To calculate a balloon payment on a mortgage:**

A \$75,000 mortgage has payments (in arrears) that would totally amortize the loan in 30 years at 13% APR, but the terms of the contract call for a total pay-off in the form of a balloon payment in 10 years. What is the monthly payment, and what is the balloon payment?

Strategy

A balloon payment is the Future Value. To get the balloon payment, calculate FV and add the PMT amount to it.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
30 G n	30 F8 Q	(30 x 12) periods in the term.
13 G i	13 F8 w	APR converted to monthly rate.
75,000 CHS PV	75,000 | E	Amount financed (negative to you).
0 FV	0 T	Loan is paid off at the end.
PMT	R	Result: \$829.65 payment.
10 G n	10 F8 Q	Change the term to play “What if?”
FV	T	Result: \$70,814.85 remaining balance after the 120th payment.
RCL PMT +	M R +	Recall the PMT and add to this balance. Result: \$71,644.50 total balloon payment.

❑ **To calculate a discounted mortgage:**

Lenders sometimes want to collect their money early, but a contract may not allow this. As a result, they offer to sell the contract to another lender, and to make the sale attractive, they offer to discount the mortgage (accept a sum that is less than the present value of the payments owed to them under the contract). Discounting a mortgage results in a higher yield for the new lender than the APR of the original contract.

A lender sells a mortgage with 10 years of remaining monthly (arrears) payments of \$550.00. The APR is 14%, but the lender offers to discount it so that the buying lender will yield 16%. What is the contract's price? What would be the new yield if the price were \$30,000.00?

Strategy

First, find the present value of all remaining payments on the mortgage, but use 16% as the interest. Then use \$30,000 as the present value; compute what interest this would mean.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
10 G n	10 F8 Q	(10 × 12) periods remaining.
0 FV	0 T	Loan is paid at the end.
550 PMT	550 R	Amount of each level payment.
16 G i	16 F8 w	Specify yield to find price.
PV	E	Result: \$-32,833.25 Price yields 16%.
30,000 CHS PV	30,000 J E	Now specify price to find yield.
i	w	Result: 1.54 monthly yield.
12 *	12 *	Annualize it: 18.49%

Note: The 14% APR of the original contract is irrelevant to this problem. Its only role was in establishing the amount of the borrower's payment.

❑ To calculate prepaid finance charges:

Prepaid finance charges (points) are nothing more than the original lender discounting the mortgage to himself. The quoted APR is used to determine the borrower's payments, but the finance charges reduce the price the lender has to pay (make the loan) for the contract. This raises his yield and the true interest rate paid by the borrower.

A lender charges 1.5% up front to lend \$80,000 for 30 years of monthly payments in arrears at 13.5% APR. What is his true yield (and thus the borrower's true rate)?

Strategy

Compute the borrower's payment using the quoted APR. Then discount the loan to the lender by using as the PV what he is really lending (the loan less the finance charges). Solve for i.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
30 G n	30 F8 Q	(30 × 12) periods in the term.
80,000 CHS PV	80,000] E	Amount financed.
0 FV	0 T	Loan is paid at the end.
13.5 G i	13.5 F8 W	Quoted APR.
PMT	R	Result: \$916.33.
80000 Enter	80000 ENTER	Borrower's PMT.
1.5 % - CHS PV	1.5 G -] E	Use 78,800 as price of mortgage.

i	w	Result: 1.14 monthly yield.
12 *	12 *	Annualize it: 13.72%

❑ To calculate second mortgages and wraparounds:

When a piece of property has a second mortgage on it, the borrower makes two payments, often to separate lenders. Computing the total payment involves first computing the two payments separately, then adding them together.

A wraparound mortgage is a second mortgage in which a lender offers to relieve a borrower of his payment obligations on a first mortgage, plus lend him some money in return for a new level of payment. So the borrower has one payment, while the second lender owes the first.

A home owner owes 20 years of monthly payments of \$450.00 on his first mortgage. You offer to wrap his mortgage, lending him \$15,000 for home improvements and relieving him of his first mortgage in exchange for \$650.00 payments for those 20 years. What is the yield on your \$15,000 loan? What would the borrower's new payment be to yield you 17%?

Strategy

First, you get \$200 monthly for a 20 year loan of \$15,000. Find the interest rate. Second, specify a rate of 17% and compute the payment. If this is your net monthly cash flow, it is the difference between what the borrower pays you and the \$450 you owe monthly to the first lender, so add \$450.00.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
20 G n	20 F8 Q	(20 × 12) periods in the term.
15,000 CHS PV	15,000] E	Amount you finance.
0 FV	0 T	The loan is paid at the end.

200 PMT	200 R	This is your net monthly cash flow.
i 12 *	W 12 *	Result: 15.22% your annualized yield.
17 G i	17 F8 w	Now specify your desired yield.
PMT	R	Result: \$220.02 your monthly net.
450 +	450 +	Result: \$670.02 borrower's payment.

□ To calculate variable rate-mortgages:

In a variable rate mortgage, the first series of payments are compounded using one APR and the full term of the loan. Then the next series of payments are computed using the remaining balance and the remaining term, and so on.

A \$70,000 mortgage on a 30-year term calls for monthly payments in arrears, based on a 12% APR for the first year, and a 13% APR for years two through five, and a 15% APR thereafter. Compute the payments for each of the three periods.

Strategy

Treat each period as a separate problem. The remaining balance and term from the previous period become the term and amount financed for the next.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
30 G n	30 F8 Q	(30 × 12) periods in the term.
70,000 CHS PV	70,000] E	Loan amount to start.
0 FV	0 T	The loan is paid off at the end.
12 G i	12 F8 w	APR for the first year.
PMT	R	Result: \$720.03 first year payment.
1 G n FV	1 F8 Q T	Remaining balance after first year.
CHS PV	] E	This becomes the loan for the second period.
29 G n	29 F8 Q	The term of the second period loan.

13 G i	13 F8 w	APR of second period loan.
0 FV PMT	0 T R	Result: \$773.78 PMT for years 2-5.
4 G n FV	4 F8 Q T	Remaining balance after years 2-5.
CHS PV	J E	This becomes loan for third period.
25 G n	25 F8 Q	Term of third period loan.
15 G i	15 F8 w	APR of third period loan.
0 FV PMT	0 T R	Result: \$878.75 PMT for years 6-30.

❑ To calculate an amortization schedule (AMORT):

Both the lender and borrower on a mortgage often want to know the amount of each level of payment that applies toward interest, how much to reduce the principal, and the remaining balance at that time. This is called the amortization schedule.

Each payment normally covers the entire interest for that period plus some of the principal. As time goes on, less funds are needed to cover the interest on the shrinking debt. Then the principal payment accelerates.

A 30-year, \$50,000 mortgage at 14% APR has monthly payments in arrears. What are the amounts paid to interest and principal in the first year? From years two to five? What are the remaining balances at those times?

Strategy

All these questions are answered with the AMORT key. First, however, compute the PMT with a simple 5-key solution. Then use AMORT with the 5-key results still in the financial registers.

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are in arrears.
30 G n	30 F8 Q	(30 × 12) monthly payments.
14 G i	14 F8 w	Enter APR as a monthly rate.
50,000 CHS PV	50,000 J E	Amount financed.
0 FV	0 T	Amortized in 30 years.
PMT	R	Result: \$592.44 monthly payment.
12 F AMORT	12 F7 Q	Analyze P and I for the first 12 periods. Result: Interest = \$6,992.71.

X \leftrightarrow Y	V	Principal = \$116.52.
RCL PV	M E	Balance after 12th PMT: \$-49,883.48.
48 F AMORT	48 F7 Q	Analyze P and I for next 48 periods. Result: Interest = \$27,768.85.
X \leftrightarrow Y	V	Principal = \$668.08.
RCL PV	M E	Balance after 60th PMT: \$-49,215.41.

Using Discounted Cash Flow Analysis (DCF) Keys

The 5-key solutions are good for mortgages and other problems with even payments (or zero payments) every period. But when periodic cash flows are uneven, you need to use the Discounted Cash Flow (DCF) keys to perform the analysis. To do this, describe cash flows in groups. You can have up to 20 groups with up to 99 (identical) cash flows in each group.

You use the DCF keys to perform the following tasks:

- Perform discounted cash flow analysis
- Calculate net present value
- Calculate internal rate of return
- Calculate yield and rate conversions

❑ To perform discounted cash flow analysis:

1. Type in the amount (including the sign) of the initial cash flow group and press G CFo.
2. Type in the number of periods in a row this cash flow occurs and press G Nj.
Whenever an occurrence is once, you can skip this step.
3. Type in the amount (including the sign) of the next cash flow group and press G CFj.
4. Type in the number of periods in a row this same cash flow occurs and press G Nj.
Whenever an occurrence is more than 99 times, you need to break up the oversized group into multiple consecutive groups.
5. Repeat steps 3 and 4 as many times as is necessary to complete the analysis.

Note: Remember the calculator's limits: 20 groups maximum and 99 identical cash flows per group. If there are no cash flows in some periods, use 0 as the cash flow amount. You need to account for every time period of the analysis. Obey the signs of the cash flows.

A \$70,000 mortgage on a 30-year term calls for monthly payments in arrears, based on a 12% APR for the first year, a 13% APR for years two through five, and a 15% APR thereafter.

Strategy

To tell the calculator this is a new analysis, use G CFo and G Nj for the initial group. Thereafter, use G CFj and G Nj.

Mouse	Keyboard	Explanation
70,000 CHS G CFo	70,000 | F8 E	Amount of cash flow in the first group.
1 G Nj	1 F8 T	This is an optional step which indicates that there is only one cash flow in the group. If for any group you don't use G Nj, the calculator proceeds as if there is only one cash flow.
720.03 G CFj	720.03 F8 R	Next group: amount of each cash flow.
12 G Nj	12 F8 T	Number of cash flows of that amount.
773.78 G CFj	773.78 F8 R	Next group: amount of each cash flow.
48 G Nj	48 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount. (Maximum number in any group is 99. If you have more than that, use more than one group.)
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.

99 G Nj	99 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
3 G Nj	3 F8 T	Number of cash flows of that amount. The last four groups have accounted for all 300 of the payments for years 6 through 30 in the loan.

□ To calculate net present value (NPV):

What discount should you receive for \$70,000 on a variable-rate mortgage to yield 17%?

Strategy

Type in the discounted cash flow analysis example. Then type in the desired yield per period and press i. Finally, press F NPV.

Mouse	Keyboard	Explanation
70,000 CHS G CFo	70,000 J F8 E	Amount of cash flow in the first group.
1 G Nj	1 F8 T	This is an optional step which indicates that there is only one cash flow in the group. If for any group you don't use G Nj, the calculator proceeds as if there is only one cash flow.
720.03 G CFj	720.03 F8 R	Next group: amount of each cash flow.
12 G Nj	12 F8 T	Number of cash flows of that amount.
773.78 G CFj	773.78 F8 R	Next group: amount of each cash flow.
48 G Nj	48 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount. (Maximum number in any group is 99. If you have more than that, use more than one group.)

878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
3 G Nj	3 F8 T	Number of cash flows of that amount. The last four groups have accounted for all 300 of the payments for years 6 through 30 in the loan.
17 G i	17 F8 w	Desired yield in monthly form.
F NPV	F7 E	Result: \$-13,175.59.

❑ To calculate internal rate of return (IRR):

IRR is to the DCF keys what *i* is the the five financial keys — it computes the interest rate. Like *i*, IRR demands at least one positive and one negative cash flow. Unlike *i*, IRR is very handy for determining an overall or blended rate yield for uneven payment situations.

Compute the overall blended rate for a variable-rate mortgage.

Strategy

Type in the previous example, then use IRR.

Mouse	Keyboard	Explanation
70,000 CHS G CFo	70,000] F8 E	Amount of cash flow in the first group.
1 G Nj	1 F8 T	This is an optional step which indicates that there is only one cash flow in the group. If for any group you don't use G Nj, the calculator proceeds as if there is only one cash flow.
720.03 G CFj	720.03 F8 R	Next group: amount of each cash flow.

12 G Nj	12 F8 T	Number of cash flows of that amount.
773.78 G CFj	773.78 F8 R	Next group: amount of each cash flow.
48 G Nj	48 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount. (Maximum number in any group is 99. If you have more than that, use more than one group.)
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
99 G Nj	99 F8 T	Number of cash flows of that amount.
878.75 G CFj	878.75 F8 R	Next group: amount of each cash flow.
3 G Nj	3 F8 T	Number of cash flows of that amount. The last four groups have accounted for all 300 of the payments for years 6 through 30 in the loan.
F IRR	F7 T	Result: 1.15% per month.
12 *	12 *	Annualize this: 13.81% APR.

❑ To calculate yield and rate conversions:

When two compounding rates of interest are equivalent, they earn exactly the same number of cents on the dollar in one year. Usually problems arise for one of two reasons:

- Two rates apply to different time periods. For example, is 3% quarterly equivalent to 1% monthly? If not, what is the monthly rate?
- The rates apply to the same time period, but they compound at different intervals. For example, is 12% APR, compounded

monthly, equivalent to 12%, compounded daily? If not, then what is the equivalent APR for daily compounding?

To solve problems like these in which you convert from rate A to rate B, always use the same procedure.

Strategy

First, find out what rate A earns per year on a given amount of money. Second, using the result you just arrived at, work backward to find out what rate B produces the same result, but with different compounding periods.

3% quarterly = ___ % monthly?

Mouse	Keyboard	Explanation
4 n	4 Q	4 quarters per year.
3 i	3 W	3% per quarter.
100 CHS PV	100] E	Use \$100 as a hypothetical investment.
0 PMT	0 R	No other cash flows; just let interest accrue on the \$100.
FV	T	Result: \$112.55 balance after one full year of rate A.
12 n	12 Q	Now change the number of periods in the year to 12.
i	W	Find out what monthly rate gives the same FV. Result: 0.99.

Note: You can read the effective yearly rate by looking at the result of the FV calculation: \$12.55 was earned on \$100 over one year, so the effective rate is 12.55. But this is not the APR (which is 11.88).

12% APR, compounded monthly = ___ % APR, compounded daily?

Mouse	Keyboard	Explanation
12 n	12 Q	12 months per year.
12 Enter 12 / i	12 ENTER 12 / W	Input APR after dividing by the number of compounding periods per year.
100 CHS PV	100] E	Use \$100 as the hypothetical investment.

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0 PMT	0 R	No other cash flows; just let interest accrue on the \$100.
FV	T	Result: \$112.68 - the balance after one year of rate A.
365 n	365 Q	Now change the number of periods in the year to 365.
i	W	Find out what daily rate gives the same FV. Result: 0.03.
365 *	365 *	The annualized APR: 11.94%

15% APR compounded daily (365-day year) = ____ % APR, compounded daily (360-day year)?

Mouse	Keyboard	Explanation
365 n	365 Q	365 days per year.
15 Enter 365 / i	15 ENTER 365 / W	Input APR after dividing by the number of compounding periods per year.
100 CHS PV	100 | E	Use \$100 as a hypothetical investment.
0 PMT	0 R	No other cash flow.
FV	T	Result: \$116.18 - balance after one year of rate A.
360 n	360 Q	Now change the number of periods in that year to 360.
i	W	Find what 360-day rate gives the same FV. Result: 0.04.
360 *	360 *	The annualized APR: 14.99754708%.
F9	F7 9	Select F then 9 (F7 then 9) to see all these digits.

Solving Annuity Problems

An annuity is typically thought of as fixed income produced from interest or dividends on an amount of principal. Sometimes the annuity is limited to the interest only. Sometimes (as in many retirement programs) it is intended that the principal be slowly depleted as well. In either case, the recipient of the annuity is analogous to a mortgage lender; the principal is loaned with the expectation of receiving payments on it.

1. How much do you need to start with in a retirement account on January 1, 2001, so that you can receive \$2,500 per month for 20 years, depleting the account at the end of 20 years? The account earns 10% APR.
2. What would the monthly annuity be if you wanted to have \$50,000 left after 20 years? The account earns 8%.

Strategy

This is a straightforward 5-key problem. The unknown for the first question is present value (PV) and for the second question, payment (PMT).

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Assume the check comes at month's end.
20 G n	20 F8 Q	(20 × 12) months.
10 G i	10 F8 W	Account earns 10% APR.
2500 PMT	2500 R	The monthly annuity check.
0 FV	0 T	The principal is gone in 20 years.
PV	E	Result: \$-259,061.55 - the balance you need as starting principal.
50,000 FV	50,000 T	Now specify some remaining balance.
8 G i	8 F8 W	Change to the lower interest rate.
PMT	R	Result: \$2,082.01 Your monthly annuity under this scenario.

Solving IRA and Savings Account Problems

Individual retirement accounts (IRAs) and savings accounts are examples of loans in which the lender holds the account and the borrower manages it. This kind of loan is made in small and often regular amounts and intervals. It is the repayment (withdrawals) that may occur all at once.

Beginning with your end-of-the-month paycheck for January 1988, you save \$100 per month in a 6% savings account (compounded monthly). What is the amount in savings on September 1, 1996? If the account were an IRA at 12%, and you wanted the resulting sum to be \$20,000, what amount would you need to save each month?

Strategy

This is a straightforward 5-key problem. The unknown for the first question is future value (FV) and for the second question, payment (PMT).

Mouse	Keyboard	Explanation
G END	F8 keypad 8	Payments are made into the account at the end of the month.
104 n	104 Q	104 months from 1/88 to 9/96.
6 G i	6 F8 w	Your interest rate is 6% APR.
100 CHS PMT	100] R	The monthly deposit, which is really a loan you make to the bank.
0 PV	0 E	The account starts at \$0.00.
FV	T	Result: \$13,596.99, balance on 9/1/96.
20,000 FV	20,000 T	Specify the remaining amount.
12 G i	12 F8 w	Change to the IRA interest rate.
PMT	R	Result: \$110.21, the required monthly IRA contribution.

Computing Bonds

A bond is a written promise to pay a specified sum to the bearer of that piece of paper on a specified date (maturity date), plus interest payments at regular (coupon) intervals in the meantime. The piece of paper may be sold at any time at any price agreeable to both parties.

The Financial Calculator has keys that calculate a bond's price (for a desired Yield-To-Maturity) or its YTM, given the price of the bond.

You can use the PRICE and YTM keys only for the following situations:

- The sum due upon maturity (par) is \$100.
- The coupon period is 6 months (semi-annual coupon). So the coupon rate quoted (which is annualized) is actually twice what the interest payment is for each period.
- The calendar used is a 365-day year.
- When computing a selling price for a date within some coupon period, the calculator computes the interest that is

rightly the seller's for the portion of the period the bond is held.

To compute bonds or find the number of days between dates, you'll need to type in a calendar date in one of two formats: Month.DayYear (M.DY) or Day.MonthYear (D.MY).

When you see d.my in the display, then any calendar date you type in should be in Day.MonthYear format. When you don't see this annunciator, all dates should be in Month.DayYear format.

❑ To calculate price and yield-to-maturity (YTM):

A bond maturing on October 24, 1991 at a par of 100 is being offered on March 19, 1987 for 75 plus the odd-days' interest due the seller. The bond carries an 8% coupon rate, paid semi-annually on an actual 365-day basis. What is your Yield-To-Maturity if you buy this bond? What price (and what interest) would you pay to get a YTM of 12%. This is the only kind of bond to which the Financial Calculator's PRICE and YTM keys are applicable.

Strategy

Use the PRICE and YTM keys.

Mouse	Keyboard	Explanation
G M.DY	F8 keypad 5	Sets the Financial Calculator to accept dates in this format.
75 PV	75 E	Price paid, excluding interest.
8 PMT	8 R	Coupon rate.
3.191987 Enter	3.191987 ENTER	Purchase date.
10.241991	10.241991	Maturity date.
F YTM	F7 S	Result: 15.85% APR.
12 i	12 W	Now play "What if?" by specifying a 12% APR yield.
3.191987 Enter	3.191987 ENTER	Purchase date.
10.241991	10.241991	Maturity date.
F PRICE	F7 A	Result: \$86.14 purchase price.
X↔Y	V	Result: 3.18% seller's interest.

Remember you adjust the number of decimal places you see by pressing F and the number.

Note: Don't use as maturity dates the last day of March, May, October, or December, or the last three days of August; move the whole analysis forward, if possible.

Computing Depreciation

The Financial Calculator offers three methods for depreciation (slowly writing off an asset as an expense): straight-line, declining balance, and sum-of-the-year's digits (SOYD), but not ACRS.

You're buying a computer system for \$500,000.00. You estimate its serviceable life to be 10 years, with a salvage value of \$100,000.00. Compare three methods of depreciation by computing the depreciation of year five, using straight-line, 150% declining balance, and SOYD.

Strategy

Use the special keys for depreciation.

Mouse	Keyboard	Explanation
500,000 PV	500,000 E	The present value of the asset.
100,000 FV	100,000 T	The salvage value. You don't need to obey the sign conventions here because this is not a 5-key or NPV problem.
10 n	10 Q	The depreciable life.
150 i	150 W	The declining balance factor (used only in the DB calculation).
5 F SL	5 F7 D	Result: \$40,000.00 (year 5 SL depreciation).
X↔Y	V	Result: \$200,000.00 (remaining value).
5 F DB	5 F7 G	Result: \$39,150.47 (year 5 DB value).
X↔Y	V	Result: \$121,852.66 (remaining value).
5 F SOYD	5 F7 F	Result: \$43,636.36 (year 5 SOYD depreciation).
X↔Y	V	Result: \$109,090.91 (remaining value).

Computing Appreciation

If you invest in a piece of property in a healthy economy, the salable value of that property rises over time. You can then compute the per year (compounding) value of that property and compare it to other interest-bearing investments.

You buy a house today for \$150,000. In five years, you think you can sell it for \$250,000. What is the yearly appreciation rate? If the rate were 12%, what would the sale price be?

Strategy

This problem has level cash flows, evenly spaced, with a single investment at the beginning and a single return at the end. Use a 5-key solution. BEG vs END is immaterial, because PMT is zero.

Mouse	Keyboard	Explanation
150,000 CHS PV	150,000] E	The present value of the house to you, the investor.
250,000 FV	250,000 T	The future value of the house to you, the seller.
5 n	5 Q	The time period involved.
0 PMT	0 R	No other cash flows.
i	w	Result: 10.76% yearly appreciation.
12 i	12 w	Play "What if?" by changing the rate to 12% and solve for the resulting sales value.
FV	T	Result: \$264,351.25.

Calculating Statistics

You can use the Financial Calculator to perform the following statistical analyses:

- Calculate the mean (average)
- Calculate linear projections
- Calculate a weighted mean

When you want to accumulate a set of data points for statistical analysis, use the $\Sigma+$ key. To use the $\Sigma+$ key, perform the following:

1. Enter your data points in the X register.
You can use the Y register also if you have a problem that demands analysis of more than one variable.
2. Press the $\Sigma+$ key.
The $\Sigma+$ key is the & key on your keyboard.

The US federal budget deficits (in billions of dollars) for fiscal years 1976-1985 were the following:

1976	66.4	1981	57.9
1977	44.9	1982	110.6
1978	48.8	1983	207.8
1979	27.7	1984	195.4
1980	59.6	1985	211.9

What was the average deficit for the first five years of this period?
The second five years?

Strategy

Accumulate the data for the first five years in the X register and the second five years in the Y register. Then solve for the mean. The answer will be given in both X and Y registers.

Mouse	Keyboard	Display	Explanation
F Clear	F7 B	0.00	To clear registers 1-6 and the stack.
57.9 Enter	57.9 ENTER		First pair of data points.
66.4 $\Sigma+$	66.4 &	1.00	For fiscal years 1981 and 1976.
110.6 Enter	110.6 ENTER		Second pair of data points.
44.9 $\Sigma+$	44.9 &	2.00	For fiscal years 1982 and 1977.
207.8 Enter	207.8 ENTER		Third pair of data points.
48.8 $\Sigma+$	48.8 &	3.00	For fiscal years 1983 and 1978.
195.4 Enter	195.4 ENTER		Fourth pair of data points.
27.7 $\Sigma+$	27.7 &	4.00	For fiscal years 1984 and 1979.
211.9 Enter	211.9 ENTER		Fifth pair of data points.
59.6 $\Sigma+$	59.6 &	5.00	For fiscal years 1985 and 1980.

Note: If you make a mistake at any entry and reproduce your mistake, press Σ^- (F8 &) to undo the mistake.

❑ **To calculate the mean (average):**

To find the averages of your two sets of data from the previous problem, perform the following operation:

Mouse	Keyboard	Explanation
G x	F8 keypad 0	Result: 49.5. This is the X average, the yearly deficit from 1976-1980.
X \leftrightarrow Y	v	Result: 156.7. This is the Y average yearly deficit 1981-1985.

❑ **To calculate linear projection:**

After two sets of data are typed in, you can use the pace of one set to project the other into the future.

If each of the above deficit paces had been continued, then in the time it would have taken the 1976-1980 pace (which was decreasing) to reach \$0 (a balanced budget), what would the deficit have reached using the 1981-1985 pace (which was increasing)?

Mouse	Keyboard	Explanation
0 G y,r	0 F8 keypad 2	Project y by naming an x value. Result: 256.3 billion.

❑ **To calculate a weighted mean:**

To calculate a weighted mean, use the same procedure as for a normal mean, except use the weighting factor (your yield percentages, for example) as your Y set and your raw amount (your amounts invested, for example) as your X set. When all data is accumulated, use the following keystrokes:

Mouse	Keyboard	Explanation
G xw	F8 keypad 6	Result: your weighted yield (for example).

Acknowledgement

This chapter was excerpted and summarized from a booklet entitled "The HP-12C Pocket Guide: Just in Case" published by Grapevine Publications and used with their permission.

Grapevine also publishes another book on how to use the HP-12C calculator entitled "An Easy Course In Using the HP-12C." The Easy Course includes instructions for programming the HP-12C, which is not possible with PC Tools Desktop's Financial Calculator.

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The two publications listed below give more extensive information on how to use the HP-12C calculator. Their publisher, Grapevine Publications, is in no way affiliated with Central Point Software, Inc.

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Name on card:

16. Scientific Calculator

The PC Tools Desktop Scientific Calculator emulates many of the functions of the HP-11C calculator; it does not, however, include its programming capability. If you are familiar with using the HP-11C, you will find that performing the same functions with the PC Tools Desktop version is easy. If you do not know how to use an HP-11C calculator, this section is designed to familiarize you with its use.

This section is not intended as a comprehensive demonstration of the HP-11C calculator. If you want a more complete explanation of how to use the HP-11C, there are manuals available at most bookstores.

Central Point Software, Inc. does not guarantee that the keystroke sequences and the results given are correct or suitable for your purposes. You are responsible for decisions you make when using the Scientific Calculator.

The Scientific Calculator operates by using "Reverse Polish Notation," which differs from the "Infix Notation" most calculators use. To perform calculations, you need to enter the number for the calculation first, and then enter the operator for the calculation. Your answer appears in the display after you press the function key. As you enter numbers, they go into memory into what's called a stack—the last number entered becomes the bottom entry of the stack. When the operation is performed (by pressing the function key), the operator acts upon one or more of the bottom entries in their order of entry and puts the result on the stack for the next calculation. The following example shows the different keystrokes used for Reverse Polish Notation and Infix Notation in entering numbers and functions for this problem:

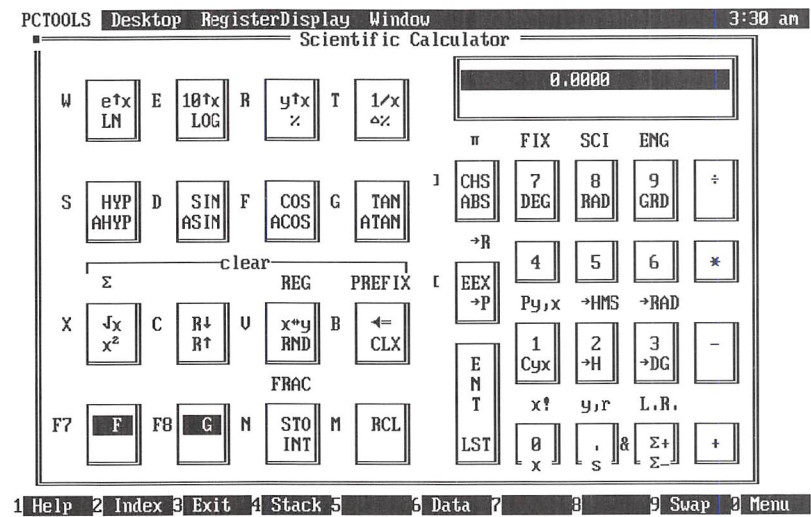
$$(6 + 12 + 3 - 9) * 3$$

Reverse Polish Notation keystrokes	Infix Notation keystrokes
6	6
ENTER	+
12	12
+	+

3	3
+	-
9	9
-	*
3	3
*	=
36 (result)	36 (result)

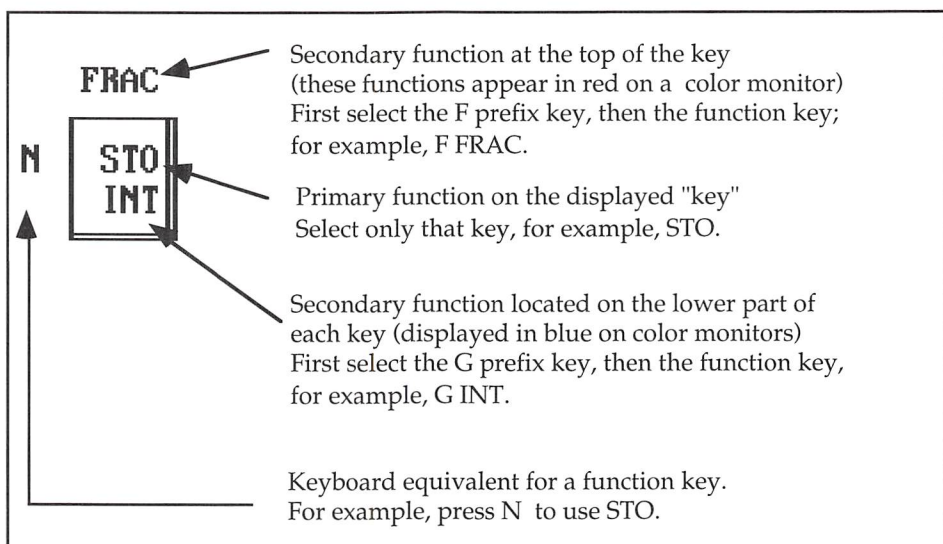
Understanding the Display

When you choose Scientific Calculator from the Calculators menu, an emulation of the HP-11C is displayed:



Using the Keys

Most “keys” on the Scientific Calculator perform more than one function. The main function is indicated by the character in the center of the key on the screen while the secondary functions are above the key (in red as the default color on color monitors) and below the main function key (in blue as the default color on color monitors). These colors can be changed from the Window menu. The letters to the left of the keys on the screen indicate the function’s keyboard equivalent.



Note: Select and release the F or G prefix key before the next key.

The "Keys" and Their Functions

"Key"	Function
$e^{\uparrow}x$	Raises e to the power of the number in the display.
G LN	Computes the natural logarithm of the number in the display.
$10^{\uparrow}x$	Raises 10 to the power of the number in the display.
G LOG	Computes the common logarithm (base 10) of the number in the display.
$y^{\uparrow}x$	Raises the number in the Y register to the power of the number in the display.
G %	Computes $X\%$ of the value in the Y register.
$1/x$	Computes the reciprocal of the number in the display.
G $\Delta\%$	Percent difference. Computes the percent of change between the number in the Y register and the number in the displayed X register.
F π	Places the value of pi (3.141592654) in the display.

CHS	Changes the sign of the number or the exponent of 10 in the display.
G ABS	Gives the absolute value of the number in the display.
F FIX	Sets the number of decimal places in the display. The default is set to 4 places; all examples in the manual assume F FIX 4.
G DEG	Sets the display mode to degrees for trigonometric functions as indicated by the absence of the GRAD or RAD annunciator.
F SCI	Sets the display mode to scientific notation.
G RAD	Sets the display mode to radians for trigonometric functions as indicated by the RAD annunciator.
F ENG	Sets the display mode to engineering notation.
G GRD	Sets the display mode to grads for trigonometric functions as indicated by the GRAD annunciator.
HYP	Computes the hyperbolic sine, hyperbolic cosine, or hyperbolic tangent, using SIN, COS, and TAN, respectively, of the number in the display.
G AHYP	Computes the inverse hyperbolic sine, inverse hyperbolic cosine, or inverse hyperbolic tangent, using SIN, COS, and TAN, respectively, of the number in the display.
SIN	Computes the sine of the number displayed in the X register.
G ASIN	Computes the arc sine of the number in the display.
COS	Computes the cosine of the number displayed in the X register.
G ACOS	Computes the arc cosine of the number in the display.
TAN	Computes the tangent of the number displayed in the X register.
G ATAN	Computes the arc tangent of the number in the display.

F →R	Converts the polar magnitude in the X and Y registers respectively to rectangular X and Y coordinates.
EEX	Enter Exponent; the next digits keyed in are exponents of 10.
G →P	Converts X, Y rectangular coordinates placed in X and Y registers respectively to polar magnitude.
F Σ	Clears the contents of the statistics registers (R0-R5) and the stack registers, but not the LAST X register.
\sqrt{X}	Computes the square root of the number in the display.
G X^2	Computes the square of the number in the display.
R↓	Rolls down the contents of the stack.
G R↑	Rolls up the contents of the stack.
F REG	Clears the contents of all storage registers to zero.
X↔Y	Exchanges the contents of the X and Y stack registers.
G RND	Rounds the mantissa of a 10 digit number in the X register to match the display setting.
F PREFIX	Cancels the F and G prefixes and partially entered instructions such as F SCI or G HYP .
<--	Deletes numbers from displayed X register.
G CLX	Clears the contents of the displayed X register to zero.
ENT	Enters a copy of a number in the displayed X register into the Y register; it is also used to separate multiple number entries.
G LST	Recalls the number displayed before the previous function back into the displayed X register.
F Py,x	Permutation. Computes the number of possible ordered choices of y different items taken in quantities of x items at a time without repetitions.

G Cyx	Combination. Computes the number of possible sets of y different items taken in quantities of x items at a time without repetitions or order.
F ->HMS	Converts decimal hours—or degrees—to hours, minutes, seconds—or degrees, minutes, seconds.
G ->H	Converts hours, minutes, seconds (or degrees, minutes, seconds) to decimal hours (or degrees).
F ->RAD	Converts degrees to radians.
G ->DG	Converts radians to degrees.
F	Selected before a function key, preforms the functions above the key. The “f” annunciator also appears in the display.
G	Selected before a function key, performs the functions below the key. The “g” annunciator also appears in the display.
F FRAC	Extracts the digits after the decimal and places them in the display.
STO	Stores from 1 to 10 numbers in the 0 to 9 and .0 to .9 place holders.
G INT	Extracts the digits before the decimal point and places them in the display.
RCL	Recalls the stored number(s). Select this key and follow it with the storage register number.
F x!	Calculates factorial $x!$ or Gamma function Γ .
G x	Calculates the mean (average) of the x and y values collected using $\Sigma+$.
F y,r	Calculates linear estimate and correlation coefficient.
G s	Calculates the sample standard deviations of the x and y values collected using $\Sigma+$.
F L.R.	Calculates linear regression.

- Σ+

Collects statistics of numbers from the X and Y registers into the statistics storage registers (R0-R5).
- G Σ−

Subtracts statistics of numbers in the X and Y registers from the statistics storage registers (R0-R5) to correct statistics collection.

How to Use the Following Examples

If you are using a mouse, the first column in each table shows you which key on the display to click. If you are using the keyboard, the second column shows you which keys you need to press. These keys are located to the left of the display keys. You need to enter any numbers in the table using the numeric keypad or number keys on your keyboard or you can click on the keys with the mouse. The third column shows the number appearing in the display. All of the examples in the manual assume F FIX 4.

Clearing the Display

The Scientific Calculator clears digits from the registers and display two ways: with the CLX (clear X) and <-- (back arrow) keys. G CLX clears any numbers in the display to zero. The <-- key operates in the following two ways:

- If you select <-- after a function, all digits in the display are cleared to zero.

Mouse	Keystrokes	Display
1578	1578	1578
1/x	T	0.0006
<--	B or back arrow	0.0000

- After you have typed a new number, if you select <-- before performing a function, the last digit you keyed in is deleted. Deleting one or more digits then enables you to key in new digits to replace them.

Mouse	Keystrokes	Display
1578	1578	1578
<--	B or back arrow	157
<--	B or back arrow	15
9	9	159

16. Scientific Calculator

Clearing the Prefixes

If you want to cancel a prefix for a function (for example, if you make a mistake), use **F clear PREFIX** to cancel the error. **Clear PREFIX** also cancels the **STO**, **RCL**, **HYP**, and **AHYP** functions.

One-Number Operations

A one-number operation is any numerical operation that uses just one number. To perform one-number operations:

1. Enter the number if it is not already in the display.
2. Select the operator key.

Mouse	Keystrokes	Display
64	64	64
\sqrt{x}	x	8.0000

Two-Number Operations

To execute a two-number operation, you need to have entered two numbers in the calculator before performing the operation. The **+**, **-**, *****, and **÷** are examples of two-number operations. The **+** key adds the last entry to the value stored in the calculator, and the **-** key subtracts the last entry; the ***** key multiplies what's in the calculator by the last entry, and the **÷** key divides by the last entry. But first, you have to enter the numbers into the calculator. You do not need to use the **ENTER** key if the first number of the two-number operation is already in the calculator (as the result of a previous operation). If you have to type in two numbers before performing an operation, use the **ENTER** key to separate the two numbers.

Order of Entry

Reversing the order of the numbers in addition and multiplication will not have any effect on your answer, but the number you are subtracting or dividing by must always be the **second** number entered.

To Perform	Keystrokes or Mouse	Display
5 ÷ 4	5 ENTER 4 / or ÷	1.2500
4 ÷ 5	4 ENTER 5 / or ÷	.8000
5 - 4	5 ENTER 4 -	1.000
4 - 5	4 ENTER 5 -	-1.000

When using two-number operations (such as y^x), the number designated by **x** is the last number to be entered. For example, to

calculate the value of 2 raised to the power of four (2^4), type 2, press ENTER, type the exponent, 4, then select $y^{\wedge}x$.

Mouse	Keystrokes	Display
2	2	2
ENT	ENTER	2.000
4	4	4
$y^{\wedge}x$	R	16.000

To solve $(6 + 12 + 3 - 9) * 3$:

Mouse	Keystrokes	Display
6	6	6
ENT	ENTER	6.0000
12	12	12
+	+	18.0000 (6 + 12)
3	3	3
+	+	21.0000 (6 + 12 + 3)
9	9	9
-	-	12.0000 (6 + 12 + 3 - 9)
3	3	3
*	*	36.0000 (6 + 12 + 3 - 9) * 3

To solve $(10 + 2) \div (9 - 3)$, first solve for the intermediate result of $(10 + 2)$:

Mouse	Keystrokes	Display
10	10	10
ENT	ENTER	10.0000
2	2	2
+	+	12.0000 (10 + 2)

Now calculate $(9 - 3)$. Next, solve the second equation and remember to select ENTER to separate the two numbers.

16. Scientific Calculator

Mouse	Keystrokes	Display
9	9	9
ENT	ENTER	9.0000
3	3	3
-	-	6.0000 (9 - 3)

Then divide the intermediate results (12 and 6) for the final answer:

Mouse	Keystrokes	Display
÷	/	2.0000 (10 + 2) ÷ (9 - 3)

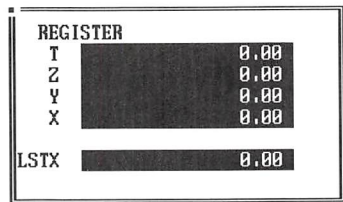
Understanding the Registers

The Scientific Calculator uses different types of registers to manipulate and store the results of calculations. To view the contents of any of the registers, choose the appropriate kind of register from the Register Display menu shown below.



Stack Registers

The memory stack registers, along with the ENTER key, store and recall intermediate results for your calculations.

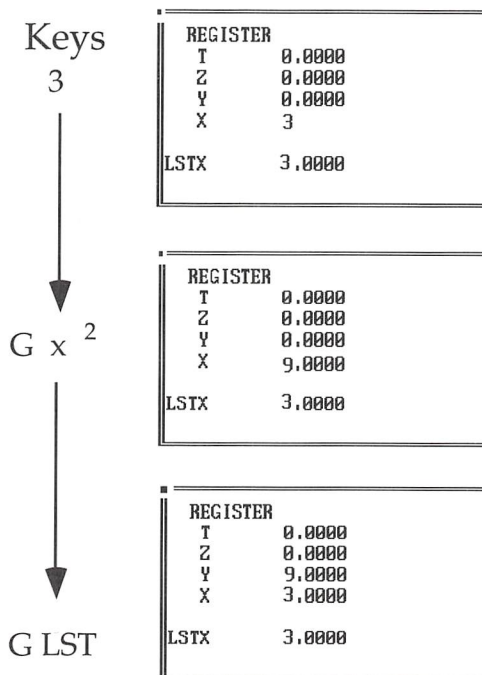


When using the Scientific Calculator, the number in the display is the same number in the X register. Typing in a number or executing an operation causes the numbers already in the stack to move up one register, remain in the same register, or drop, depending upon the type of operation you are performing. Numbers in the stack are available on a last in, first out basis.

$R\downarrow$ and $R\uparrow$ roll the contents of the stack registers down or up one register. No values are lost. $X\leftrightarrow Y$ exchanges the numbers in the X and Y registers.

LAST X Register - LSTX

When an operation is performed, a copy of the number in the X register before the operation was performed is also stored in the LAST X register. Selecting $G\ LST$ places a copy of the contents of the LAST X register into the X register. This feature saves you from having to re-enter numbers you want to use again and can assist you in error recovery. The following illustration demonstrates how the LAST X register works with the operation 3^2 :



Data Registers

Storing and recalling numbers involve the displayed X register and the data storage registers.

REGISTER		REGISTER	
R0	0.00	R.0	0.00
R1	0.00	R.1	0.00
R2	0.00	R.2	0.00
R3	0.00	R.3	0.00
R4	0.00	R.4	0.00
R5	0.00	R.5	0.00
R6	0.00	R.6	0.00
R7	0.00	R.7	0.00
R8	0.00	R.8	0.00
R9	0.00	R.9	0.00

Storing and Recalling Numbers - STO and RCL

Using the Scientific Calculator, numbers can be stored in memory for later use with the STO (store) and RCL (recall) keys. The STO key copies the number in the displayed X register and places it in the specified storage place holder. Select the STO key and then press a numeral key (or click on it with the mouse) to place the number from the display into the specified place holder. You can place up to 20 numbers in memory by entering them in the 0 to 9 and .0 to .9 place holders. You can view the storage registers to see which place holder the stored number is in by choosing D from the Register Display menu or pressing F6. Selecting the RCL key then pressing the specified place holder numeral brings back the stored value to use even when other calculations have been performed in the interim.

Example

The following keys, STO, RCL, +, -, *, ÷, use the number in the X register to perform arithmetic upon the contents of a specified storage register *n*. The key sequence is STO followed by an arithmetic function key, followed in turn by the register address (0 through 9 and .0 through .9). The result of any storage register operation is placed in the specified data storage register.

Mouse	Keystrokes	Display	
6 STO 1	6 N 1	6.0000	Stores 6 in R1.
2 STO ÷ 1	2 N / 1	2.0000	Divides number in R1 (6) by 2.
RCL 1	M 1	3.0000	Recalls copy of new number in R1.
4 STO * 1	4 N * 1	4.0000	Multiplies number in R1 (3) by 4.

RCL 1	M 1	12.0000	Recalls copy of new number in R1.
STO + 1	N + 1	12.0000	Adds 12 to number in R1.
RCL 1	M 1	24.0000	Recalls copy of new number in R1.
8 STO - 1	8 N - 1	8.0000	Subtracts 8 from number in R1.
RCL 1	M 1	16.0000	Recalls copy of new number in R1.

Clearing the Storage Registers - F REG

A copy of the stored number remains in the storage register until a new number is stored there or until the storage registers are cleared. Selecting F REG (keystrokes F7-V) clears the contents of all storage registers to zero. It also clears the statistics registers (R1-R5). To clear a single storage register, store zero in that register.

Clearing the Stack Registers - F Σ

To make sure that no values from previous calculations remain in the stack registers, select F clear Σ (that's F7-X on the keyboard) to clear the Stack Registers before beginning the new operation. F Σ clears the stack registers, but not the LAST X register.

Controlling the Display Mode

The Scientific Calculator has three modes for displaying digits: fixed, FIX; scientific, SCI; and engineering, ENG . These modes use a variable (0 through 9) to specify the display setting.

Fixed Mode - F FIX

The FIX key enables you to specify the number of digits after the decimal point. The Scientific Calculator initially displays 4 decimal places; however, internally, each number is represented as a 10-digit mantissa and a two-digit exponent of 10. You can set the number of places after the decimal point by selecting the F key, then the FIX key, and then pressing a numeral key (or clicking on it with the mouse). The designation of decimal places is retained even when you turn off the computer. For example, selecting F FIX 2 would display the number 456,789 as 456,789.00.

Scientific Mode - F SCI

SCI displays a number in scientific notation. To select or change SCI mode, select F SCI and then the number key specifying the number of decimal places you want the display rounded to, from 0 to 6. For example, selecting F SCI 4 would display 456,789 as 4.5679 05.

Engineering Mode - F ENG

ENG displays numbers in engineering notation format, which is similar to scientific notation with the following exceptions:

- Exponents are displayed in multiples of three. Thus any display can be easily read in units of K (kilo-10³) or m (milli-10⁻³) that are frequently used in the engineering field.
- The next digit after the specified number of decimal places is automatically rounded off.

The number following F ENG specifies the number of digits to display following the first significant digit. The following example demonstrates this:

Mouse	Keystrokes	Display	
456789	456789	456789	
F ENG	F7 9	456789	
1	1	460. 03	Rounded to one significant digit.
F ENG	F7 9	460. 03	
3	3	456.8 03	Rounded to third significant digit.
F ENG	F7 9	456.8 03	
5	5	456.789 03	

Entering Exponents - EEX

The EEX (enter exponent) function is used to enter the exponent of a number. To use EEX, first type the mantissa, then select EEX, then type in the exponent. For example, to type in 1.2345 X 10⁶⁷, do the following:

Mouse	Keystrokes	Display	
1.2345	1.2345	1.2345	
EEX	[	1.2345 00	The 00 prompts you to key in the exponent.
67	67	1.2345 67	(1.2345 X 10 ⁶⁷)

Changing Numbers

Absolute Value - G ABS

Selecting G ABS changes the number in the display to the absolute value of the number.

Mouse	Keystrokes	Display
45678	45678	45678
CHS	]	-45678
G ABS	F8]	45,678.0000

Rounding Numbers - G RND

Selecting G RND rounds the Scientific Calculator's internal 10-digit mantissa of the value in the display to the specified number of digits you selected with the FIX, SCI, or ENG setting.

Mouse	Keystrokes	Display	
789.66666	789.66666	789.66666	
G RND	F8 v	789.6667	(assumes FIX 4 display setting)

Changing the Sign of a Number - CHS

Selecting CHS will change the sign in front of a number to the opposite sign. Positive is the default; if the number is changed to negative, a minus (-) will appear in the display.

Integer - G INT

Selecting G INT extracts the digits before the decimal point from the number in the display and places them in the display.

Mouse	Keystrokes	Display	
789.6666	789.6666	789.6666	
G INT	F8 N	789.0000	(assumes FIX 4 display setting)

Fractional Part - F FRAC

Selecting F FRAC extracts the digits after the decimal point from the number in the display and places them in the display.

Mouse	Keystrokes	Display	
789.6666	789.6666	789.6666	
F FRAC	F7 N	0.6666	(assumes FIX 4 display setting)

One-Number Operations

Pi - F π

Selecting F π places the value of pi (3.141592654) in the display (assuming you've set the F FIX setting to 9).

Reciprocal or Inverse - 1/x

Selecting 1/x displays the reciprocal of the number in the display.

Mouse	Keystrokes	Display
3	3	3
1/x	T	0.3333

Square - G X^2

Selecting G X^2 calculates the square of the displayed number. To calculate 11.8 squared, do the following:

Mouse	Keystrokes	Display
11.8	11.8	11.8
G X^2	F8 x	139.2400

Square Root - \sqrt{x}

Selecting \sqrt{x} calculates the square root of the displayed number. To calculate the square root of 64, do the following:

Mouse	Keystrokes	Display
64	64	64
\sqrt{x}	\sqrt{x}	8.0000

Factorial - $F x!$

Selecting $F x!$ calculates the factorial of the number in the display. To calculate 5 factorial ($5 * 4 * 3 * 2 * 1$), do the following:

Mouse	Keystrokes	Display
5	5	5
$F x!$	$F7 0$	120.0000

Gamma - $\Gamma x!$

To calculate the Gamma function of a number, subtract 1 from the number. Then, with the result in the X register, select $x!$.

Mouse	Keystrokes	Display
1.5	1.5	1.5
ENT	ENTER	1.5000
1	1	1
-	-	.5000
$F x!$	$F7 0$	.8862

**Performing
Logarithmic Functions**
Common Logarithm - $G \text{ LOG}$

Selecting $G \text{ LOG}$ calculates the common logarithm (base 10) of the displayed number. The number must be positive.

Mouse	Keystrokes	Display
5	5	5
$G \text{ LOG}$	$F8 E$	0.6990

Common Antilogarithm - $10^{\uparrow}X$

Selecting $10^{\uparrow}x$ calculates the common antilogarithm of the number in the display; it raises 10 to the power of that number. Therefore, $10^{1.2345}$ is calculated

Mouse	Keystrokes	Display
1.2345	1.2345	1.2345
$10^{\uparrow}x$	E	17.1593

Natural Logarithm - G LN

Selecting G LN calculates the natural logarithm of the number in the display: the logarithm to the base e .

Mouse	Keystrokes	Display
10	10	10
G LN	F8 w	2.3026

Natural Antilogarithm - $e^{\uparrow}x$

Selecting $e^{\uparrow}x$ calculates the natural antilogarithm of the number in the display;

$e^{1.2345}$ is the following:

Mouse	Keystrokes	Display
1.2345	1.2345	1.2345
$e^{\uparrow}x$	w	3.4367

Performing
Trigonometric
Functions

You can work with trigonometric functions using one of three types of angle units: degrees, radians, or grads. Selecting a mode tells the calculator what unit of measure to use; it does not convert a number already in the calculator.

Selecting G DEG selects the degree mode. Selecting G RAD puts the calculator in radian mode, and “rad” appears in the display.

Selecting G GRAD puts the calculator in gradians mode, and “grad” appears in the display.

The following table shows the available trig functions and keys to select.

Mouse	Keystrokes	Function
SIN	D	Sine
COS	F	Cosine
TAN	G	Tangent
G ASIN	F8 D	Arc sine
G ACOS	F8 F	Arc cosine
G ATAN	F8 G	Arc tangent

Performing Hyperbolic Functions

Hyperbolic calculations are performed with the trigonometric keys preceded by the HYP key for hyperbolic calculations or the AHYP key for inverse hyperbolic calculations.

Mouse	Keystrokes	Functions
HYP SIN	S D	Hyperbolic sine (sinh)
HYP COS	S F	Hyperbolic cosine (cosh)
HYP TAN	S G	Hyperbolic tangent (tanh)
G AHYP SIN	F8 S D	Inverse hyperbolic sine (\sinh^{-1})
G AHYP COS	F8 S F	Inverse hyperbolic cosine (\cosh^{-1})
G AHYP TAN	F8 S G	Inverse hyperbolic tangent (\tanh^{-1})

Time and Angle Conversions

Hours, Minutes, Seconds Conversion - F ->HMS

Selecting F ->HMS converts the number in the display from a decimal hours (or decimal degrees) format to an hours (or degrees), minutes, seconds, decimal seconds format.

Mouse	Keystrokes	Display
12.345	12.345	12.345
F ->HMS	F7 2	12.2042

Hours, H.h, is converted to H.MMSSs. Degrees, D.d is converted to D.MMSSs.

Decimal Hour Conversion - G ->H

Selecting G ->H converts the number in the display from an hours (or degrees), minutes, seconds, decimal seconds format to a decimal hour (or degrees) format.

Mouse	Keystrokes	Display
12.3456	12.3456	12.3456
G ->H	F8 2	12.5822

Hours, H.MMSSs, is converted to H.h. Degrees, D.MMSSs is converted to D.d.

Degrees/Radians Conversion

Degrees to Radians - F ->RAD

Selecting F ->RAD converts the displayed number from decimal degrees to radians.

Mouse	Keystrokes	Display
67.1	67.1	67.1
F ->RAD	F7 3	1.1711

Radians to Degrees - G ->DG

Selecting G ->DG converts the displayed number from radians to degrees.

Mouse	Keystrokes	Display
1.1711	1.1711	1.1711
G ->DG	F8 3	67.0991 or 67.1

Two-Number Operations

As previously mentioned, the Scientific Calculator uses the values in the displayed X register and the Y register to calculate some results. To use any of the two-number operations, enter the Y register value first, press **ENTER** to lift the value into the Y register, key in the displayed X register value, then execute the operation.

Exponential - y^x

Selecting y^x raises the number in the Y register to the power of the number in the displayed X register. Enter the number (Y) that you want to raise to a power, select `ENTER`, then enter the power, and complete the operation by selecting y^x . Thus, 5^2 is calculated as:

Mouse	Keystrokes	Display
5	5	5
ENT	ENTER	5.0000
2	2	2
y^x	R	25.0000

Percent - G %

Selecting G % calculates what percentage the value in the X register is of the value in the Y register. The following example shows 15% of 70.

Mouse	Keystrokes	Display
70	70	70
ENT	ENTER	70.0000
15	15	15
G %	F8 R	10.5000 (answer 10.5)

The percentage appears in the display, the Y register remains the same, and the percentage rate is placed in LAST X. The stack does not change, so any values held in the Z and T registers before selecting G % will remain. The following illustration shows the stack of the previous problem.

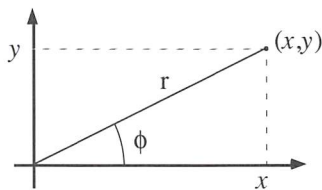
REGISTER	
T	0.0000
Z	0.0000
Y	70.0000
X	10.5000
LSTX	15.0000

Percent Difference - G Δ%

Selecting G Δ% calculates the percent difference between two numbers. To calculate the percent increase between 70 (the base number) and 115:

Mouse	Keystrokes	Display
70	70	70
ENT	ENTER	70.0000
115	115	115
G Δ%	F8 T	64.2857

Polar-Rectangular Coordinate Conversions



Polar Conversions - G ->P

Selecting G ->P converts the rectangular coordinate values in the X and Y registers (x, y) to polar coordinates (magnitude r, angle φ). Using the illustration above, convert (3,1):

Mouse	Keystrokes	Display
1	1	1
ENT	ENTER	1.0000
3	3	3
G -> P	F8 [	3.1623
X↔Y	v	18.4349 (angle in degrees)

Rectangular Conversions - F ->R

Selecting F ->R changes polar coordinate values stored in the X and Y registers (magnitude r, angle φ) to rectangular coordinates (x, y).

Mouse	Keystrokes	Display	
18.4349	18.4349	18.4349	(degrees)
ENT	ENTER	18.4349	
3.1623	3.1623	3.1623	
F -> R	F7 [	3.0000	
X↔Y	v	1.0000	

Probability

Permutation - F Py,x

Selecting F Py,x calculates the number of permutations of y taken x at a time. The following formula is used to calculate permutation:

$$P_{y,x} = \frac{y!}{(y-x)!}$$

Combination - G Cyx

Selecting G Cyx calculates the number of combinations of y taken x at a time. The following formula is used to calculate combinations:

$$C_{y,x} = \frac{y!}{x!(y-x)!}$$

To Execute a Permutation or Combination:

Note: All permutation and combination numbers must be non-negative integers.

1. Enter y .
2. Select ENTER .
3. Enter x .
4. Select F Py,x or G Cyx.
The result appears in the display, the stack drops, and y appears in the LAST X register.

Mouse	Keystrokes	Display	
5	5	5	
ENT	ENTER	5.0000	
3	3	3	
F Py,x	F7 1	60.0000	Permutation

Mouse	Keystrokes	Display	
5	5	5	
ENT	ENTER	5.0000	
3	3	3	
G Cyx	F8 1	10.0000	Combination

Statistics

Clearing the Statistics Registers - F Σ

Data registers R0-R5 are designated as statistics storage registers. Any values collected using the $\Sigma+$ key are placed in these registers in order to perform statistical analyses. To make sure there are no values remaining in the data registers from previous calculations, select the F Σ keys (that's the F7 and X keys on the keyboard). This also clears the stack registers.

$\Sigma+$

Selecting $\Sigma+$ computes statistics on the data in the X and Y registers, storing the results in the statistics storage registers R0-R5 as follows:

- R0 The number of data points (pairs) accumulated. This value also appears in the display.
- R1 The sum of the x values (Σx).
- R2 The sum of squares of the x values (Σx^2).
- R3 The sum of the y values (Σy).
- R4 The sum of squares of the y values (Σy^2).
- R5 The sum of the products of the x and y values (Σxy).

Selecting the $\Sigma+$ puts the number in the X register into the LAST X register, and the new value in R0 is placed in the X register.

Recalling Statistical Collections

Selecting RCL and the number of the data storage register recalls the value contained in that register to the displayed X register. If you want to recall both the R1 and R3 values (representing Σx and Σy statistics) select RCL $\Sigma+$. This copies the value in R3 into the Y register, and the value in R1 into the displayed X register.

Correcting Mistakes

Select G $\Sigma-$ to correct numbers that have been entered incorrectly.

Do the following to correct the data pair in the X and Y registers:

1. Enter the Y value of the incorrect data pair and select ENTER to place it in the Y register.
2. Enter the X value of the incorrect data pair into the X register and select G $\Sigma-$ (press F8-& on the keyboard).
3. Type the correct values for y and x (in this order) and select $\Sigma+$. You must delete and re-enter both values (x and y) even if only one of them is incorrect.

Example

The following data will be used in the subsequent discussion of the Scientific Calculator's statistical functions.

The US federal budget deficits and the US Department of Defense expenditures (in billions of dollars) for fiscal years 1976-1980 were:

Federal Budget Deficits Department of Defense Spending

1976	66.4	1976	57.9
1977	44.9	1977	110.6
1978	48.8	1978	207.8
1979	27.7	1979	195.4
1980	59.6	1980	211.9

The following example demonstrates how to accumulate a set of data points for statistical analysis using the previous federal budget and

16. Scientific Calculator

defense spending information. The Department of Defense data is placed in the Y register, the Federal Budget Deficits in the X register.

Mouse	Keystrokes	Display	
F Σ	F7 X	0.00	Clears registers 0-5 and the stack.
57.9 ENT	57.9 ENTER		First pair of data points.
66.4 $\Sigma+$	66.4 &	1.00	For fiscal year 1976.
110.6 ENT	110.6 ENTER		Second pair of data points.
44.9 $\Sigma+$	44.9 &	2.00	For fiscal year 1977.
207.8 ENT	207.8 ENTER		Third pair of data points.
48.8 $\Sigma+$	48.8 &	3.00	For fiscal year 1978.
195.4 ENT	195.4 ENTER		Fourth pair of data points.
27.7 $\Sigma+$	27.7 &	4.00	For fiscal year 1979.
211.9 ENT	211.9 ENTER		Fifth pair of data points.
59.6 $\Sigma+$	59.6 &	5.00	For fiscal year 1980.

The contents of the data registers after entering the previous data pairs follows:

Total federal deficit	→	REGISTER		REGISTER	
		R0	5.0000	R.0	0.0000
Total DOD spending	→	R1	247.4000	R.1	0.0000
		R2	13,125.8600	R.2	0.0000
		R3	783.6000	R.3	0.0000
		R4	141,848.3800	R.4	0.0000
		R5	36,992.9600	R.5	0.0000
		R6	0.0000	R.6	0.0000
		R7	0.0000	R.7	0.0000
		R8	0.0000	R.8	0.0000
		R9	0.0000	R.9	0.0000

Mean - G X

Selecting G X computes the arithmetic mean of the x and y statistics in the R1 and R3 registers. From the five year statistical data you collected and stored in the example above, calculate the mean deficit for the five years and the mean defense spending for the same time period.

Mouse	Keystrokes	Display	
G x	F8 0	49.4800	This is the mean deficit from 1976-1980.
X↔Y	v	156.7200	This is the mean defense spending for 1976-1980.

Standard Deviation - G s

Selecting G s computes the standard deviation of the accumulated statistics data according to the following formula:

$$S_x = \sqrt{\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}}$$

$$S_y = \sqrt{\frac{n \sum y^2 - (\sum y)^2}{n(n-1)}}$$

The Scientific Calculator computes the standard deviation of the accumulated x values using the data that has been stored in the R0, R1, and R2 data registers and places the result in the X register. The standard deviation of the accumulated y values stored in R0, R3 and R4 is calculated and placed in the Y register. If you want to compute the exact value of the population standard deviation, add the mean of the data to the data (select G x , then Σ+ , then G s).

Mouse	Keystrokes	Display	
G s	F8 keypad .	14.8703	This is the standard deviation of the yearly deficit from 1976-1980.
X↔Y	v	68.9974	This is the standard deviation of the defense expenditures for 1976-1980.

Linear Regression - F L.R.

After the data pairs have been collected in R0-R5, you can calculate the coefficients to the linear equation $y = Ax + B$ using F L.R. The slope (A) is placed in the Y register and the “y” intercept (B) is placed in the X register.

Linear Estimation and Correlation Coefficient - F y,r

Selecting F y,r places the linear estimate in the X register and the correlation coefficient in the Y register. Linear regression and linear estimation are based upon the presumption that the interdependence of the x and y values approximate a straight line. Correlation coefficient is how closely the data “fits” a straight line. It ranges from -1 to +1, with +1 being a straight line with a positive slope and -1 a straight line with a negative slope.

Scientific Calculator Display Errors

If you try performing a calculation containing an improper operation (for example, dividing by zero), the display will show the word “Error” along with a number. The Scientific Calculator displays Error 0, Error 1, or Error 2. Error 0 means you have entered an improper mathematical operation, for example, calculating the percent difference of zero. Error 1 means you have entered too many values into the Storage Registers and caused an overflow. Error 2 can be displayed if you enter an improper statistical operation. To clear the error message, press or click on any key.

17. Programmer's Calculator

The Programmer's Calculator is designed to emulate many of the functions contained in the HP-16C calculator, manufactured by Hewlett-Packard.

As the name implies, the Programmer's Calculator functions are intended for people who have a need to perform programming-related calculations. This section assumes that you are already familiar with computer organization principles and binary operations.

Performing calculations on the PC Tools Desktop version is particularly easy if you have used the HP-16C calculator. Although this section will be most useful for those of you who have not used the HP-16C, experienced users should at least read the section noting the differences between the two calculators.

Central Point Software, Inc. does not guarantee that the keystroke sequences and the results given are correct or suitable for your purposes. You are responsible for the decisions you make when using the Programmer's Calculator.

Listed below are just a few situations where the Programmer's Calculator can be used:

- Converting between hexadecimal, binary, octal, and decimal values.
- Performing arithmetic in 1's or 2's Complement or Unsigned mode.
- Isolating bits in word values using logical operators.
- Shifting bits left and right.
- Performing "double" precision functions such as multiplication and division.

Calculator Differences

If you are familiar with the HP-16C, you can see that the PC Tools Desktop version does not share the HP's programming capabilities. Since this means that the Programmer's Calculator has significantly

17. Programmer's Calculator

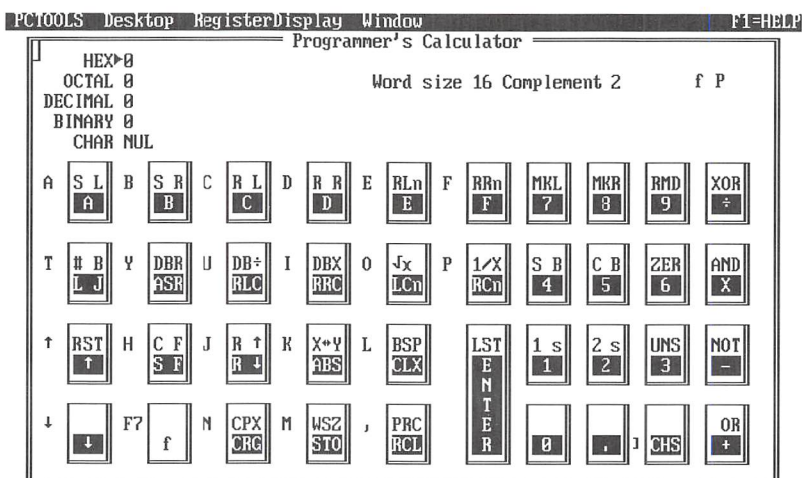
fewer functions, there is no need for three functions assignments to each key. The HP-16C has a "g" function key in addition to the "f" key. Only the "f" key is used in the Programmer's Calculator.

Many of the other modifications in the Programmer's Calculator are related to this fundamental difference. In addition, the Programmer's Calculator does not support scientific notation.

The Programmer's Calculator's handling of floating-point numbers is another fundamental difference setting it apart from the HP-16C. In the HP-16C, floating-point precision is set by pressing F-float, then entering the number of decimal places. In the Programmer's Calculator, precision is set by first entering the number of decimal places, then choosing PRC. The Programmer's Calculator also allows you to initiate floating-point format by simply entering a number containing a decimal fraction.

This chapter is not intended as a comprehensive tutorial of the HP-16C calculator. If you want a more complete explanation of how to use the HP-16C, you should obtain a manual for that calculator.

When you choose Programmer's Calculator from the Calculators submenu, an emulation of the HP-16C is displayed.



Understanding the Display

The Programmer's Calculator has two parts: a smaller display area in the upper quadrant of the screen and the main part of the screen that includes the calculator keyboard.

In the upper left of the screen is a list of number bases supported by the Programmer's Calculator — hexadecimal, octal, decimal, and binary. On the screen, these are shown as HEX, OCTAL, DECIMAL, and BINARY. To move from one number base to another, use the UP and DOWN arrows on your computer keyboard or click on the desired number base with the mouse.

The Programmer's Calculator supports a character display, CHAR, which displays the character equivalent of the low-order byte of a hexadecimal number. The character's ASCII equivalent is displayed in other bases.

Note: The following keyboard keys do not affect the CHAR display — F1, F2, F3, F4, F6, F9, F10, F11, F12, CAPS LOCK, SHIFT, CTRL, ALT, PRINT SCREEN, SCROLL LOCK, NUM LOCK, PAUSE, the 5 key on the number pad, and the UP and DOWN arrows.

To the right of the number bases in the display area is the current word size (the range is 1 to 64 bits and the default is 16) and also a notation showing whether Complement 1, 2, or Unsigned Mode is selected. The Programmer's Calculator has three primary system flags that are shown on the far right side of the display area. Flag 3 indicates leading zero control and displays a "Z" when set, Flag 4 indicates a number carry-over and displays a "C" when set, and Flag 5 indicates a number overflow and displays a "G" (the "G" stands for greater-than-the range) when set.

Letters, or annunciators, are displayed on the right side of the display area. They include "f" for the F key function and "P" for the pending, which is set when more input is necessary.

The Calculator Keyboard

The Programmer's Calculator's keyboard requires the use of several letter and number keys that correspond to keys on your computer keyboard. You can either enter keystrokes directly or you can use a mouse to click on a particular number or function.

For example, if you press the key to the left of a button on the calculator keyboard or click the button itself with a mouse, the function that appears in white (reverse video on monochrome screens) is performed. Pressing the κ key or clicking on ABS, for example, will yield the absolute value of a number.

To enter numbers in any of the number bases, select the desired number base by either clicking on it with the mouse or using the UP and DOWN arrow keys. You can enter numbers either from the top row of keys on the keyboard or from the number pad. If you are

Using the Keyboard in Regular Mode

working in the hexadecimal number base, you can also use the A-F letter keys.

As in other calculator sections in this manual, calculator keyboard keys, or buttons, are referred to by their functional names. Functions in regular mode will be covered first, followed by F key functions. This section is not intended as a comprehensive review of the Programmer's Calculator functions: those topics are covered more thoroughly later in the chapter.

If you are using a mouse, click on the specified function key on the screen. For example, to left justify a word, click the LJ button.

Press	To perform function
T	LJ (left justify)
Y	ASR (arithmetic shift right)
U	RLC (rotate left through carry)
I	RRC (rotate right through carry)
O	LCn (rotate left through carry n number of bits)
P	RCn (rotate right through carry n number of bits)
H	SF (set flag)
J	R↓ (roll down)
K	ABS (absolute value)
L	CLX (clear X)
N	CRG (clear register)
M	STO (store number)
,	RCL (recall number)
]	CHS (change sign)

Using the Keyboard F Key Functions

***Note:** To use the mouse when performing F key functions, first click on the "F" key in the lower left of the calculator keyboard, then click on the button that contains the desired function. When using keystrokes, strike the F7 key before the pressing the function.*

Press	To perform function
A	SL (shift left)
B	SR (shift right)
C	RL (rotate left)
D	RR (rotate right)

E	RLn (rotate left n)
F	RRn (rotate right n)
7	MKL (mask left)
8	MKR (mask right)
9	RMD (remainder after division)
/	XOR (eXclusive OR)
T	# B (number of bits)
Y	DBR (double remainder)
U	DB÷ (double divide)
I	DBX (double multiply)
O	\sqrt{x} (square root)
P	1/X (reciprocal)
4	SB (set bit)
5	CB (clear bit)
6	ZER (leading zeros)
x	AND (logical product)
↑	RST (Restore start-up state)
H	CF (clear flag)
J	R↑ (roll up)
K	X^Y (exchange X and Y registers)
L	BSP (backspace)
ENTER	LST (last X register)
1	1s (1's complement mode)
2	2s (2's complement mode)
3	UNS (Unsigned mode)
-	NOT (logical operation)
F7	F (F function)
N	CPX (clear prefix)
M	WSZ (word size)
,	PRC (precision)
+	OR (logical sum)

Words, or data units, up to 64 bits long, are supported in the Programmer's Calculator. The default word size is 16 bits. To define a word size, enter a number between 1 and 64, then press the WSZ function.

If you have defined a word size that limits your ability to enter a higher word size, use the RST (restore) function to reset the Programmer's Calculator to its startup state, which sets the word size to the default of 16.

***Note:** Reducing a word size will not truncate words stored in the data storage registers, as in the HP-16C. Instead, words retain their original values.*

Understanding the Modes

Most "keys" on the Programmer's Calculator perform more than one function. F key functions are displayed at the top of the calculator keyboard buttons and can be activated after pressing the F7 key. An "f" appears in the display whenever this mode is chosen. To clear the "f" from the display and return to regular mode, press N (CPX).

***Note:** On color monitors, the default color for the F key functions is red.*

There are three forms of number representation in the Programmer's Calculator: 1's Complement mode, 2's Complement mode, and Unsigned mode. The default setting is 2's Complement mode. The current mode is shown on the display to the right of the word size in the previous screen illustration.

Controlling Number and Display Settings

The current or "active" number base is indicated by an arrow, although corresponding numbers are displayed in all bases.

For example, if you perform an addition operation in binary mode, the equivalent sums in hexadecimal, octal, and decimal modes are also displayed.

To move between number bases, use the UP and DOWN arrows or click on the desired number base with the mouse. All numbers are displayed in all bases; however if a number with a fraction is entered using the decimal base, only the integer part of the number is displayed in other bases.

To delete entries one digit at a time, use the BACKSPACE key or the BSP function. Notice that this function only works if an entry has not been terminated. To delete entire entries, use the CLX function.

Error Messages

Entering an incorrect value in a particular number base will trigger the error message "Illegal digit for this number base." To clear the message, simply enter an acceptable value. For example, assume you have been working in binary and get sidetracked by another task for a few minutes and then try to perform a decimal operation. Entering anything other than a "0" or a "1" activates the error message, prompting you to either switch number bases or enter an acceptable

value. As you might imagine, such errors are likelier to occur when switching back and forth between number bases, so simply be aware of your current number base.

System Flags

The Programmer's Calculator has three primary system flags, as well as a flag that prompts you for further input (P or pending flag.) The system flags signal leading zero control, number overflow, and carry-over condition. Setting any of the flags causes a letter, or annunciator, to appear on the right side of the display. Leading-zero control is represented by a "Z," number overflow is expressed by a "G" (greater-than-the-range), and the carry condition is represented by a "C."

Flag 3

Z (Leading-Zero Control) — Manages the display of leading zeros. Setting this flag displays zeros to the left of the highest nonzero digit. Leading zeros are suppressed when this flag is not set. You can set the Leading Zero Control Flag either by selecting the ZER function or by selecting SF (set flag), then typing the flag number (3). Clear the Leading Zero Control Flag either by re-selecting the ZER function or by selecting CF (clear flag), then typing the flag number (3).

Note: Leading zeros are always suppressed in the decimal number base.

Flag 4

C (Carry Condition) — Triggered whenever there is a carry-over number remaining from an arithmetic operation such as division or from more advanced programming calculations such as bit shifting or rotation. Clear the Carry Flag by selecting CF (clear flag), then typing the flag number (4).

Flag 5

G (Greater-Than-the-Range) — Triggered whenever the result of a calculation cannot be represented in the current word size and complement mode. When a result is out-of-range, as many of the lower bits of the full answer that fit in a particular word size are returned.

For example, assume you are working in the decimal number base, with the word size set at 16 and in 2's Complement mode. You enter 52,400 and attempt to multiply by 2 ($52,400 \times 2$). The Programmer's Calculator returns -26272 (lower bits) and triggers the G annunciator, indicating that the full answer is out-of-range.

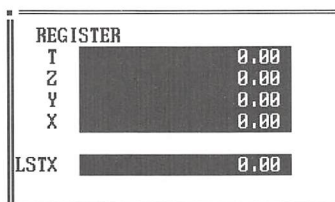
P (Pending or Prefix) — Activated after executing an operation requiring further input. Operations prompting this annunciator include STO, RCL, and CF. Clear the P flag by entering the number of a register for either a Store or Recall, or by entering the number of a flag to clear. Selecting the CPX (Clear Prefix) function will also clear the P flag.

Understanding the Registers

The Programmer's Calculators use two different types of registers to manipulate and store the results of calculations: stack and data registers. To view the contents of a register, choose the appropriate register from the Register Display menu shown below.



The memory stack registers, along with the ENTER key, store and recall intermediate results for your calculations. The stack registers are connected in a way that allow you to do lengthy calculations easily by stacking intermediate results.



The number in the display is the same number in the X register. Typing in a number or executing an operation causes the numbers already in the stack to move up one register, remain in the same register, or drop, depending upon the type of operation you are performing. Numbers in the stack are available on a last in, first out basis.

$R\downarrow$ and $R\uparrow$ roll the contents of the stack registers down or up one register. No values are lost. $X\leftrightarrow Y$ exchanges the numbers in the X and Y registers.

When an operation is performed, a copy of the number in the X register before the operation was performed is also stored in the LAST X register. Selecting LST places a copy of the contents of the LAST X register into the X register. This feature saves you from

having to re-enter numbers you want to use again and can assist in error recovery.

Storing and recalling numbers involve the displayed X register and the data storage registers.

REGISTER	
R0	0
R1	0
R2	0
R3	0
R4	0
R5	0
R6	0
R7	0
R8	0
R9	0
(Oct)	

Storing and Recalling Numbers

Numbers can be stored in memory for later use with the STO (Store) and RCL (Recall) keys. The STO key copies the number in the displayed X register and places it in the specified storage place holder. Select the STO key and then press a numeral key (or click on it with the mouse) to place the number from the display into the specified place holder. You can place up to 10 numbers in memory by entering them in the 0 to 9 place holders. You can view the storage registers to see which place holder the stored number is in by choosing D from the Register Display menu or pressing F6. Selecting the RCL key and then pressing the specified place holder numeral brings back the stored value to use even when other calculations have been performed in the interim.

A copy of the stored number remains in the storage register until a new number is stored there or until the storage registers are cleared. Clear a specific register by storing a value of 0 in that register. Select CRG (mouse) or N (keystrokes) to clear a register in the Programmer's Calculator.

Note: When using either the stack or data registers, the current number base is indicated at the bottom of the register dialog box.

The keys STO, RCL, +, -, *, and ÷ use the number in the X register to perform arithmetic upon the contents of a specified storage register *n*. The key sequence is STO followed by an arithmetic function key, followed in turn by the register address (0 through 9). The result of any storage register operation is placed in the specified data storage register.

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Mouse	Keystrokes	Display	What it Does
6 STO 1	6 M 1	6.0000	Stores 6 in R1.
2 STO ÷ 1	2 M / 1	2.0000	Divides number in R1 (6) by 2.
RCL 1	, 1	3.0000	Recalls copy of new number in R1.
4 STO * 1	4 M * 1	4.0000	Multiplies number in R1 (6) by 4.
RCL 1	, 1	12.0000	Recalls copy of new number in R1.
STO + 1	M + 1	12.0000	Adds 12 to number in R1.
RCL 1	, 1	24.0000	Recalls copy of new number in R1.
8 STO - 1	8 M - 1	8.0000	Subtracts 8 from number in R1.
RCL 1	, 1	16.0000	Recalls copy of new number in R1.

Using Floating-Point Numbers

Floating-point format can be invoked in the Programmer's Calculator by choosing either the PRC (precision) function, or by simply entering a number containing a decimal fraction. When in floating-point mode, the Programmer's Calculator automatically changes the word size to 64. The word size reverts to its former state if the precision is set to 0. When precision is set at 0, any decimal fraction part of a number is truncated in the Programmer's Calculator stack register.

Note: The Programmer's Calculator is capable of storing up to 18 significant digits in the maximum word size of 64. Thus, even though only 2 decimal places may be shown on the display, up to 18 decimal places are retained internally.

❑ To set precision:

1. Enter the number of decimal places you want the Programmer's Calculator to display.
2. Choose the PRC function.

The corresponding number of decimal places are shown on the display.

❑ To eliminate precision:

1. Enter 0.
2. Choose the PRC function.

The decimal places are eliminated.

Performing Basic Arithmetic Functions

The Programmer's Calculator uses "Reverse Polish Notation" to perform calculations. Using this format, you key in a number, choose ENTER, key in the second number, then key in the arithmetic operator to execute the calculation. Remember that the Programmer's Calculator displays entries and solutions in all four number bases so you can compare values.

Addition (+)

Problem: $1 + 2 + 3$ (decimal)

Solution:

1. Type 1, then press ENTER.
2. Type 2 and press the + key.
3. Type 3 and press the + key.
4. The solution, 6, appears in the display. For a longer addition problem, simply repeat the same steps. Notice that you do not need to press ENTER for an intermediate solution because it automatically becomes the first number of the next calculation.

Subtraction (-)

Problem: $25 - 6.2 - 0.93$ (decimal)

Solution:

1. Type 25 and press ENTER.
2. Type 6.2 and press the - key.
3. Type 0.93 and press the - key.
4. The solution, 17.87, appears in the display.

Multiplication (X)

Problem: 1101 * 1001 (binary)

Solution:

- 1. Type 1101 and press ENTER.
- 2. Type 1001 and press the * key.
- 3. The solution, 1110101, appears in the display.

Note: You can also press the x key to perform a multiplication operation.

Division (÷)

Problem: F÷3 (hexadecimal)

Solution:

- 1. Type F and press ENTER.
- 2. Type 3 and press the ÷ key.
- 3. The solution, 5, appears in the display.

Note: If Precision is 0, a decimal fraction resulting from a division operation is truncated by the Programmer's Calculator.

**Performing Single-
Number Functions**

Single-number functions apply operations only to the entry in the X register. Entries do not have to be terminated to apply single-number functions. Word size should be set to the default of 16 unless otherwise noted.

The first column in each table shows you which key on the display to click if you are using a mouse. The second column shows you which keys you need to press if you are using the keyboard. Keys are located to the left of the calculator keyboard display keys. The third column in the table shows the number appearing in the display after either the mouse or keyboard action is carried out.

Square Root — √x

Problem: Solve for the square root of 43,560 (decimal), including 2 decimal places of accuracy.

Solution:

Mouse	Keystrokes	Display
2	2	2
F PRC	F7 ,	0.00
43560	43560	43560
F \sqrt{x}	F7 O	208.71

Note: If Precision is 0, a decimal fraction resulting from a square root operation is truncated by the Programmer's Calculator.

Reciprocal or Inverse — 1/X

Problem: Solve for the reciprocal of 0.08 (decimal).

Solution:

Mouse	Keystrokes	Display
0.08	0.08	0.08
F 1/X	F7 P	12.50

Note: If the decimal precision is set to 0, the 1/X function will not work.

Change Sign — CHS

Changes the sign by forming the 1's or 2's complement of the number in the X register.

Problem: Change the sign of F (hexadecimal).

Solution:

Mouse	Keystrokes	Display
F	F	F
CHS	I	FFF1

Absolute Value — ABS

Converts the number in the X register to its absolute value, forming the 1's or 2's complement of a negative number.

17. Programmer's Calculator

Problem: Determine the absolute value of -191 (decimal).

Solution:

Mouse	Keystrokes	Display
191	191	191
CHS	]	-191
ABS	K	191

Number of Bits — #B

Counts the number of bits in the X register and returns that value to the X register.

Problem: Count the number of bits in -150 (decimal) with a word size of 64.

Solution:

Mouse	Keystrokes	Display
0	0	0
WSZ	F7 M	64
CLX	L	0
150	150	150
CHS	]	-150
F #B	F7 T	60

Performing Boolean or “Logical” Operations

The Programmer's Calculator supports four logical operators — AND, NOT, OR, and XOR.

Logical Sum — OR

Compares each corresponding bit in two words. Returned bits are 0 only if both corresponding bits are 0.

Problem: Determine which corresponding bits are 0 in both 11001 and 10010 (binary). Word size is set at 8.

Solution:

Mouse	Keystrokes	Display
11001 ENTER	11001 ENTER	11001
10010	10010	10010
F OR	F7 +	11011

Logical Difference — XOR

Compares each corresponding bit in two words and returns a 1 only if corresponding bits are not alike. A 1 occurring in the result signifies that the bits are different.

Problem: Determine if the two hexadecimal numbers, F and 5, are identical. Word size is set at 16.

Solution:

Mouse	Keystrokes	Display
F ENTER	F ENTER	F
5	5	5
F XOR	F7 /	A

Logical Product — AND

The same as OR, except that AND searches for common 1's.

Problem: Perform an AND to determine which bits are 1s in 101101 and 111010 (binary), with a word size of 16.

Solution:

Mouse	Keystrokes	Display
101101 ENTER	101101 ENTER	101101
111010	111010	111010
F AND	F7 x	101000

Explanation: The 1's in the first and third digit positions of the final displayed number indicate that only those digits contain 1's in the two preceding operands.

Inversion — NOT

Inverts or reverses the values of all bits in the X register. It is the same as forming the 1's complement (using CHS in 1's Complement mode).

Problem: Invert the values for all bits in the number 11111 (binary). Word Size is set at 8.

Solution:

Mouse	Keystrokes	Display
11111	11111	11111
F NOT	F7 -	11100000

Explanation: If the current word size is 8, the Programmer's Calculator's internal memory stores 11111 as 00011111, even though the display doesn't show the leading zeros. Thus 11111, a five digit number, is stored internally as 00011111. Inverting those digits (reversing their values) yields 11100000. If the word size had been 16, the answer would have been 11111111111100000.

Performing Double Functions

The three double functions supported by the Programmer's Calculator, DBX, DB÷, and DBR are used, respectively, to extract the precise calculation of a product double the current word size and the precise calculations of a quotient and remainder from a dividend of double word size. These functions are typically used in the binary number base, but they can also be applied to numbers in hexadecimal and octal mode. Because of the nature of the conventions, be sure to define a compatible word size — a multiple of four for hexadecimal numbers and a multiple of three in octal mode.

The double functions work in a similar fashion as the AX and DX registers in IBM personal computers, where the DX register stores high-order bits and the AX register stores low-order bits.

Double Multiply — DBX

Multiplies two single-word entries in the X and Y registers to yield double-word results in the same registers. The Programmer's

Calculator returns right justified values, with the most significant bits returned to the X register and the least significant bits returned to the Y register.

Problem: Calculate 00101 X 01000 in binary (5 X 8 in decimal) with a word size of 5 in 2's Complement Mode.

Note: Leading zeros are not displayed unless Leading Zero control is on.

Solution:

Mouse	Keystrokes	Display	
00101 ENTER	00101 ENTER	00101	
01000	01000	01000	
F DBX	F7 I	00001	(X register)
R↓	J	01000	(Y register)

Explanation: The most significant or high-order bits are returned to the X register (00001) and the least significant or low-order bits are returned to the Y register (01000). Access the latter by selecting the R↓ (Roll Down) function.

$$\begin{array}{r}
 \begin{array}{cc}
 5 & 00101 \\
 \times 8 & \underline{\hspace{1cm}} \\
 40(\text{decimal}) & 00001(X) \ 01000(Y)
 \end{array}
 \end{array}$$

(10-bit representation of split divided between X and Y registers.)

Double Divide — DB÷

Determines the quotient of a dividend of double word size in the Y and Z registers (with the most significant bits in the Y register) divided by a single word divisor in the X register.

Problem: Calculate the quotient of $-66 \div 6$ in binary. Word size is 5, 2's Complement mode. -66 in binary is the 10-bit number 1110111110. With the double divide function, that figure is split into two five bit numbers. In the following example, the low-order bits are entered first (deposited in the Z register), followed by the high bit numbers, (deposited in the Y register.)

Solution:

Mouse	Keystrokes	Display
11110 ENTER	11110 ENTER	11110 (low-order bits of -66)
11101 ENTER	11101 ENTER	11101 (high-order bits of -66)
110 F DB÷	110 F7 U	10101 (-11)

Explanation: The low-order and high-order bits of a number of double word size are stored in the Z and Y stack registers, respectively. After the single-word divisor is entered and the Double Divide function is applied, the Programmer's Calculator drops the stack registers twice, inserting the single-word quotient in the X register.

Double Remainder — DBR

Double Remainder is much like Double Divide, except that it returns the remainder to the X register instead of the quotient.

Problem: Determine the remainder of the double-word equation $-66 \div 5$ in binary. Word size is 5, 2's Complement mode.

Solution:

Mouse	Keystrokes	Display
11110 ENTER	11110 ENTER	11110 (low-order bits of -66)
11101 ENTER	11101 ENTER	11101 (high-order bits of -66)
101 F DBR	101 F7 Y	11111 (-1)

Explanation: As in Double Divide, the low- and high-order bits are entered separately as five-bit words and stored in the Z and Y stack registers.

Masking

Creates left- or right-justified mask of 1's. The Programmer's Calculator uses the number in the X register to determine the size of the mask. The X register stores the mask pattern after a mask operation has been performed. The current word size is the limit of the mask: for example, if you are working in a word size of 4, your mask could be no larger than 4 bits.

Note: in the following two examples, Leading zero control should be on.

Mask Left — MKL

Problem: Create a left-justified mask of 4 bits (100 in binary) with a word size of 8.

Solution:

Mouse	Keystrokes	Display
100	100	00000100
F MKL	F7 7	11110000

Mask Right — MKR

Problem: Create a right-justified mask of 3 bits (11 in binary) with a word size of 16.

Solution:

Mouse	Keystrokes	Display
11	11	0000000000000011
F MKR	F7 8	0000000000000111

Bit Shifting and Rotation

Use the bit shifting and bit rotation function to move bits left or right. What happens to the bits after they have been moved? It depends upon the type of shift or rotate performed — bits can be left justified, shifted left or right, rotated left or right through the Carry Flag, or rotated in groups.

Note: All of the following bit shifting and rotation examples are performed in binary mode.

Left Justify — LJ

Left justifies a bit pattern within its word size. Selecting this function lifts the stack registers, then inserts the left-justified word into the Y register. The “count,” or number of bit shifts needed to left justify the word, is inserted into the X register.

Problem: Left justify 10011 with the word size set at 8.

Solution:

Mouse	Keystrokes	Display
10011	10011	10011
LJ	T	11
R↓	J	10011000

Explanation: After selecting the Left Justify function, the Programmer's Calculator returned the value 11 to the display (and X register), which means that it takes 3 (decimal) bit shifts to left justify 10011. Applying the Roll Down function then displays the Y register value, 10011000, which is the left-justified word itself.

Shift Left — SL

Shifts all of the bits of a word in the X register one bit to the left and inserts a 0 on the right side of the number. Bits shifted out of a word are shifted into a carry bit, writing over the carry bit's previous state.

Problem: Determine the value of 1101 (word size 16) after a SL has been applied.

Solution:

Mouse	Keystrokes	Display
1101	1101	1101
F SL	F7 A	11010

Shift Right — SR

Shifts all of the bits of a word in the X register one bit to the right and inserts a 0 on the left side of the number. Bits shifted out of a word are shifted into a carry bit, writing over the carry bit's previous value.

Problem: Determine the value of 101 (word size 16) after a SR has been applied.

Solution:

Mouse	Keystrokes	Display
101	101	101
F SR	F7 B	10 (Carry Flag is set)

Explanation: The Programmer's Calculator shifts the rightmost bit (1) of the number into the carry bit, triggering the Carry Flag.

Rotate Left — RL

Rotates the bits in the X register one bit to the left.

Problem: Determine the value of 1110 (word size 16) after a RL has been applied.

Solution:

Mouse	Keystrokes	Display
1110	1110	1110
F RL	F7 C	11100

Rotate Right — RR

Rotates the bits in the X register one bit to the right.

Problem: Determine the value of 1011 (word size 8) after applying a RR.

Solution:

Mouse	Keystrokes	Display
1011	1011	(0000)1011
F RR	F7 D	10000101

Explanation: The Programmer's Calculator rotates the rightmost bit (1) into the highest bit position.

Rotate Left Through Carry — RLC

Rotates the bits in a word left through the carry bit. The Programmer's Calculator performs this function by moving the leftmost bit into the carry bit, then moving the original carry bit to the right end of the word.

Problem: Determine the value of 100001 (word size 16) after applying a RLC.

Solution:

Mouse	Keystrokes	Display
100001	100001	(00)100001
RLC	U	(0)1000010

Explanation: The Programmer's Calculator rotates the bits to the left and brings the carry bit (0) to the end of the returned word.

Rotate Right Through Carry — RRC

Rotates the bits in a word right through the carry bit. The Programmer's Calculator performs this function in the same manner as the previous function (RLC).

Problem: Determine the value of 101101 (word size 16) after applying a RRC.

Solution:

Mouse	Keystrokes	Display
101101	101101	101101
RRC	I	(0)10110 (Carry Flag is set)

Explanation: The Programmer's Calculator returns a value of 10110 after rotating the bits to the right and bringing the carry bit to the end of the returned word.

Rotate Left n Number of Bits — RLn

Rotates multiple bits in a word to the left. The Programmer's Calculator uses the value in the X register as n and applies that to the bit pattern in the Y register.

Problem: Determine the value of 1101 (word size 16) after rotating the bit pattern to the left by two bits.

Solution:

Mouse	Keystrokes	Display
1101 ENTER	1101 ENTER	1101
10	10	10
F RLN	F7 E	110100

Rotate Right n Number of Bits — RRn

Rotates multiple bits in a word to the right in the same manner as with RLn.

Problem: Determine the value of 1001 (word size 8) after rotating the bit pattern to the right by three bits.

Solution:

Mouse	Keystrokes	Display
1001 ENTER	1001 ENTER	1001
11	11	11
F F	F7 F	100001

Rotate Left Through Carry n Number of Bits — LCn

The same as RLn except that bits are rotated through the carry bit.

Problem: Determine the value of 1010 (word size 16) after rotating the bit pattern to the left and through the carry bit by two bits.

Solution:

Mouse	Keystrokes	Display
1010 ENTER	1010 ENTER	1010
10	10	10
LCn	O	101000

Rotate Right Through Carry n Number of Bits — RCn

The same as RLn except that bits are rotated through the carry bit.

Problem: Determine the value of 1101 (word size 8) after rotating the bit pattern to the left and through the carry bit by two bits.

Solution:

Mouse	Keystrokes	Display
1101 ENTER	1101 ENTER	1101
10	10	10
RCn	P	10000011

Setting and Clearing Bits

The Programmer's Calculator has two functions that allow you to either set individual bits to 1 or clear to 0: SB (Set Bit) and CB (Clear Bit). To perform these functions, the number containing the digits to be set or cleared should be in the Y register and the number specifying the bit to be set or cleared should be in the X register.

Clear Bit — CB

Clears a 1 bit to 0.

Problem: Clear the third bit to 0 in the value 11111.

Solution:

Mouse	Keystrokes	Display
11111 ENTER	11111 ENTER	11111
11	11	11
F CB	F7 5	10111

Set Bit — SB

Sets a 0 bit to 1.

Problem: Set the second bit to 1 in the value 11000.

Solution:

Mouse	Keystrokes	Display
11000 ENTER	11000 ENTER	11000
10	10	10
F SB	F7 4	11100

Error Conditions

If you type 2 into the binary number base display — or attempt any other operation containing an incorrect parameter — the Programmer's Calculator displays an error message at the bottom of the display area. Pressing any key (other than another illegal digit) will clear the message and return the display to its previous state. The following is a listing of all error messages contained in Programmer's Calculator.

Error 1 — Improper Mathematical Operation

- Attempting to obtain the square root (\sqrt{x}) of a negative number.
- Attempting to obtain the inverse ($1/X$) of 0.
- Dividing by 0.

Error 2 — Illegal Digit for This Number Base

- Entering A, B, C, D, E, or F while in any number base other than hexadecimal.
- Entering 8 or 9 while in the octal number base.
- Entering any digit other than 0 or 1 while in the binary number base.

Error 3 — Decimal Already Entered

- Entering a decimal point after one has already been entered.

Error 4 — Improper Flag Number

- Attempting to set or clear a flag by an incorrect number. For example if you set Flag 3 and tried to clear it by typing CF-1, the error message would be triggered.

Error 5 — Improper Register Number

- Entering a nonexistent storage register number.

Error 6 — Register Contents Too Large for Word Size

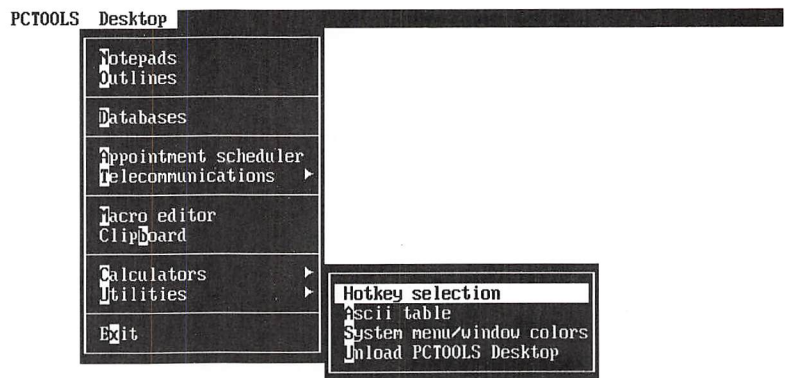
- Attempting to recall register contents that were originally stored while working in a larger word size.

18. Utilities

PC Tools Desktop includes special utility programs to modify various PC Tools Desktop settings. These settings include reassigning the hotkeys, changing system colors (such as Desktop menu colors and dialog box colors), and removing PC Tools Desktop from your computer's memory so it is no longer resident. You can also display an ASCII character table that includes IBM graphics characters.

Selecting a Utility

Once Utilities is chosen from the PC Tools Desktop pull-down menu, the Utilities submenu is displayed:



Hotkey Selection

A hotkey is a specially designated key or key sequence used to activate a resident program or a resident function. Use a hotkey to open and close PC Tools Desktop, to use the Clipboard copy and paste functions, or to automatically dial a phone number.

☐ To change the PC Tools Desktop Hotkey:

When PC Tools Desktop is installed resident, you can open or exit Desktop, from the DOS prompt or from an application, by pressing the designated hotkey. The PC Tools Desktop default hotkey sequence is CTRL - SPACEBAR, but you can change it to whatever you want.

1. Choose Hotkey Selection from the Utilities submenu.

2. Select Desktop Hotkey in the dialog box.
3. Press whatever key combination you want to use as the hotkey.
The new key combination appears in the dialog box.
4. Click on the close box with the mouse or press ESC to save the new hotkey.
The dialog box closes and the new hotkey combination is saved.

Important: *If you want to hotkey into PC Tools Desktop while running Microsoft Windows you need to change the hotkey selection to one of the following:*

CTRL - SHIFT, CTRL - ALT, OR SHIFT - ALT .

The default PC Tools Desktop hotkey selection, (CTRL - SPACEBAR), does not work when you are operating with Windows because Windows reserves these keys for its own functions.

❑ To change Clipboard paste keys:

When PC Tools Desktop is installed resident, you can use the Clipboard paste function to insert the contents of the Clipboard into any DOS application or the DOS prompt. See the *Clipboard* chapter for instructions. The paste default keys are CTRL - INSERT, but to change them perform the following procedure:

1. Select Clipboard Paste from the Hotkey dialog box.
2. Press the key combination you want to use for pasting.
The new key combination appears in the dialog box.
3. Click on the close box with the mouse or press ESC to save the new hotkey.
The dialog box closes and the new hotkey combination is saved.

❑ To change Clipboard copy keys:

When PC Tools Desktop is installed resident, you can use the Clipboard copy function to transfer selected information from the screen to the Clipboard. See the *Clipboard* chapter for instructions. The copy default key combination is CTRL - DELETE, but to change it perform the following procedure:

1. Select Clipboard Copy from the Hotkey dialog box.
2. Press the key combination you want to use for copying.
The new key combination appears in the dialog box.
3. Click on the close box or press ESC to save your new hotkey.
The dialog box closes and the new hotkey combination is saved.

❑ To change Autodial keys:

When PC Tools Desktop is installed resident, you can activate the Autodialer to dial a phone number appearing on the screen. The Autodialer default key combination is CTRL-O, but to change it perform the following procedure:

1. Select Screen Autodial from the Hotkey dialog box.
2. Press the key combination you want to use for dialing.
The new key combination appears in the dialog box.
3. Click on the close box or press ESC to save your new hotkey.
The dialog box closes and the new hotkey combination is saved.

ASCII Table

The ASCII (American Standard Code for Information Interchange) table is a chart associating a number with a letter, number, punctuation mark, or control character.

ascii table			
HEX	DEC	CTL	CODE
00		^@	NUL
01	1	^A	SOH
02	2	^B	STX
03	3	^C	ETX
04	4	^D	EOT
05	5	^E	ENQ
06	6	^F	ACK
07	7	^G	BEL
08	8	^H	BS
09	9	^I	HT
0A	10	^J	LF
0B	11	^K	VT
0C	12	^L	FF
0D	13	^M	CR
0E	14	^N	SO
0F	15	^O	SI

ascii table			
HEX	DEC	HEX	DEC
C0	192	D0	208
C1	193	D1	209
C2	194	D2	210
C3	195	D3	211
C4	196	D4	212
C5	197	D5	213
C6	198	D6	214
C7	199	D7	215
C8	200	D8	216
C9	201	D9	217
CA	202	DA	218
CB	203	DB	219
CC	204	DC	220
CD	205	DD	221
CE	206	DE	222
CF	207	DF	223

ASCII table with and without CTL code

The ASCII table shown above contains the following information:

Hex: represents the ASCII code for the character in hexadecimal equivalent.

The Character: shows the character displayed when the ASCII code is entered.

Dec: represents the ASCII code for the character in decimal equivalent.

Ctl: represents the CTRL (control) key combination to produce the character explained in the Code column. For example, pressing CTRL - H means that character 8 is the same as BS (backspace).

Code: represents the interpretation of the ASCII character.

❑ **To find a character in the table:**

- Press any character key with the table displayed. The portion of the table showing the specified ASCII code is displayed. For example, if you press D, the table will display character number 68. If you want to find a control character, press CTRL - A, for example, and the table displays character number 1.

or

Press the UP or DOWN arrow keys or the PGUP or PGDN keys to move through the symbols in the table.

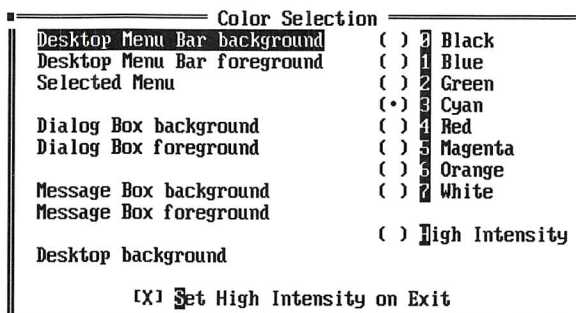
or

Scroll through the table using the mouse in the scroll bar.

System Menu/Window Colors

You can change the colors of PC Tools Desktop menus, menu bars, dialog boxes, and message boxes.

1. Choose System Menu/Window Colors from the Utilities submenu.
The Color Selection box is displayed with the default options selected.



2. Select any of the following options:

Desktop Menu Bar Background: changes the background color of the menu bar.

Desktop Menu Bar Foreground: changes the color of the commands on the menu bar.

Selected Menu: changes the color of the highlighted characters in the menus.

Dialog Box background: changes the background color of all dialog boxes.

Dialog Box Foreground: changes the color of the information in all dialog boxes.

Message Box Background: changes the background color of all message boxes.

Message Box Foreground: changes the color of the message.

Desktop Background: changes the color of the PC Tools Desktop mat background.

Set High Intensity on Exit: turns the high-intensity background controller on when when hotkeying out of PC Tools Desktop on CGA and EGA monitors.

On color monitors that provide high-intensity colors, you can have either high-intensity background colors or blinking characters. PC Tools Desktop uses high-intensity background and sets blinking on exit. If you hotkey into PC Tools Desktop on a CGA or EGA monitor from a program with high-intensity background selected, you will have

characters blinking on exit from PC Tools Desktop. To correct this, select the Set High Intensity on Exit option. This option does not affect the colors in PC Tools Desktop.

3. Select any of the color options you want.
4. Press `ESC` or close the dialog box to save your changes. The Systems Colors box closes and the colors are changed and saved.

Unload PC Tools Desktop

If you no longer want to use any of the PC Tools Desktop applications or if you need more memory space for large programs or files, you need to unload Desktop from the computer's memory. Unloading a program from memory does not remove it from the disk, it just removes the program from the computer's usable memory.

If you have loaded several memory-resident applications, you need to unload them in the reverse order they were loaded.

Note: You cannot unload PC Tools Desktop from an application; you must be at a DOS prompt outside of PC Tools Desktop.

1. Choose Unload PC Tools Desktop From Memory from the Utilities submenu.
A warning message appears for you to confirm your decision.



2. Select one of the command buttons:

Unload: removes PC Tools Desktop from the computer's memory.

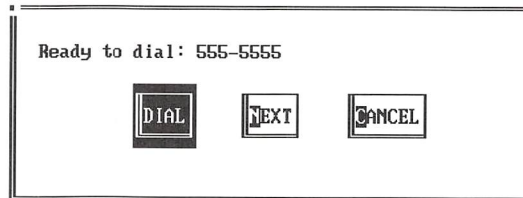
Cancel: cancels the selection and returns you to where you were before choosing Unload Desktop From Memory.

Note: You can also unload PC Tools Desktop from a DOS prompt by typing `KILL`.

19. Autodialer

You can automatically dial a phone number appearing on the screen when PC Tools Desktop is installed resident. The phone number can be in any PC Tools Desktop application, but also can be in a word-processor document, a spreadsheet, entered at the DOS prompt, etc. You must have a Hayes-compatible modem attached. Autodialer

The Autodialer is activated with a hotkey, CTRL-O, which you can change (see the *Utilities* chapter). Once you press the hotkey, a dialog box appears on the screen showing the phone number to be dialed along with three command buttons: Dial, Next, and Cancel.



Dial will dial the displayed number, Next will search for another number on the screen, and Cancel will cancel the Autodialer. If there is no number on the screen to dial, you will hear a beep. Before using this function, however, you must make sure the phone number meets the number criteria below, and you must configure the Autodialer from the Databases application. (The instructions appear below and in the *Databases* chapter.)

Phone Number Criteria

When dialing a number on the screen, the Autodialer scans all numbers on the screen and recognizes three or more consecutive numbers as a valid telephone number. The Autodialer accepts spaces, dashes, parentheses, hyphens, and "x" (for extensions) and will recognize the following characters when placed in a phone number:

P: indicates you have a rotary dial phone.

T: indicates you have a touch-tone phone.

, (comma): pauses two seconds before continuing to dial. If you want a longer pause, you can use more commas. This is useful if you have to dial 9, for example, to get a line outside a main switchboard.

*** or #:** accepted characters for phone numbers.

W: waits for a dial tone before proceeding. This is useful for dialing long-distance access services that require you to wait for a tone before continuing to dial.

@: waits for dial tone (no answer).

K: delays dialing until you press another key. Some online services answer the phone and return a tape-recorded request for more information before processing your transactions (such as automatic banking transactions). In such instances, you can use the K in your phone number. (This must be entered uppercase.)

When you select a phone number with a K in it, the Autodial Pause dialog box appears with the following options:

Resume Dialing: dials the remaining numbers in the phone string.

Cancel: cancels the dialing procedure and returns you to the current record.

Configure Autodial

Before you can use the automatic-dialing feature, you need to set transmission parameters to connect your computer system and modem. Once these parameters have been set, you don't need to change them unless you change modems. You also need to be aware of what kind of phone system you are using, for example, whether you are using a pulse or tone dialing procedure and what kinds of delays and pauses you are likely to see.

You can also enter an access code and a long-distance code that will automatically run when you dial a number.

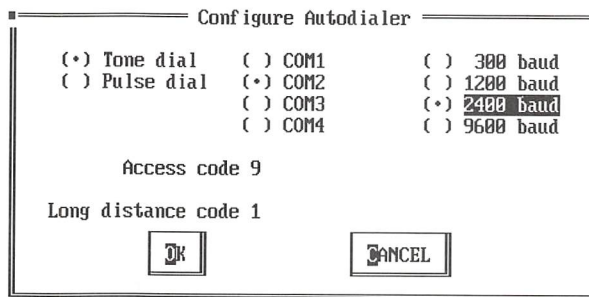
With these features, you don't have to manually enter an access code (such as 9) or a long-distance code (such as 1). When these numbers have been saved in the Configure Autodialer dialog box, PC Tools Desktop will automatically execute them each time you use your modem. If your access code or long-distance code changes, just change them in the Configure Autodialer dialog box.

Your modem should be configured so that Data Carrier Detect (DCD or CD) reflects the actual state of the carrier detect signal. Some modem manufacturers refer to this state as "True carrier detect."

❑ **To change Autodial settings:**

1. Choose Configure Autodial from the Controls menu in the Databases application.

The Configure Autodialer dialog box appears for you to either set or verify transmission settings or to enter or edit access and long-distance codes.



2. To change the settings, select any of the following configuration options:

Tone Dial: sets the dialing procedure for touch-tone phones. Using the P character in a phone number overrides this option.

Pulse Dial: sets the dialing procedure for rotary dial phones. Using the T character in a phone number overrides this option.

COM 1, 2, 3, 4: shows which serial port your modem is connected to. Since COM3 and COM4 are not standard, they must be defined on the command line with a parameter: /C3 or /C4 = IRQ,Base Port Address (for example, /C3=4,3E8). Refer to your modem manual for the IRQ and Base Port Address. This parameter is not necessary on PS/2s.

300 to 9600 baud: shows the speed at which the computer transmission takes place. Set the baud speed according to your modem's specifications.

Access Code: shows the access code you use to get an outside line. Autodialer recognizes and dials the access code you have entered in the Access Code edit box. For example, if you work in an office where you need to dial 9 to get an outside line, you would enter 9 here. Autodialer will automatically dial that number for you when you use the Autodialer. If you are calling from home, you can probably leave this blank so the Autodialer will not attempt to dial an access code.

You can change this number at any time by choosing Configure Autodial from the Controls menu and entering a new number.

Long-Distance Code: shows the long-distance code you use for a long-distance phone call. Autodialer recognizes and dials the long-distance code after dialing any access code. For example, if you enter 1 as your long-distance code, Autodialer will automatically dial that number for you when you use the Autodialer.

If you are dialing a number within your area code, you will receive a dialog box that asks you if the number is long distance. If it is a local call, select Local, if it is long distance, select Distant.

You can change this number at any time by choosing Configure Autodial from the Controls menu and entering a new number. If you leave this blank, the Autodialer will not attempt to dial a long-distance code.

Note: *The access code and long-distance code you have entered will be global for all numbers you dial with the Autodialer. The codes are saved in the DESKTOP.CFG file.*

3. Select OK to set the new transmission settings.
The dialog box closes and the current record appears for you to dial the phone number.

Selecting Cancel closes the dialog box without changing any settings and returns you to the current record. The dialog box opens with this option selected, allowing you to verify the transmission parameters.

Appendix A

Memory-Resident Programs

What Are They?

Memory-resident, or terminate-and-stay-resident, programs (TSRs) are small applications that remain in memory, ready to be called up at a moment's notice. These programs may be brought up over other active programs, such as Lotus 1-2-3 and WordPerfect. Some TSRs allow DOS command-like functions, such as Copy, Delete, and Format. PC Shell is an excellent example of this type of utility.

The PC Tools Desktop TSR was written to help counteract paper clutter on a desk. Phone dialers, notepads, and even calculators can pop up over your spreadsheet for a quick call, note, or calculation. Once you've used a desktop utility, it's hard to imagine ever being without one.

TSRs can be very helpful in saving time. TSRs can also be a source of frustration, especially if you use more than one in your system. We have taken great pains to make both PC Shell and PC Tools Desktop well behaved. These two products should have very little, if any, compatibility problems.

The next few sections of this appendix will deal with how TSRs work, problems they may cause and what to do about them.

How Do TSRs Work?

TSRs were first developed by Microsoft with the Print command. Through Print, you could load different print jobs into the computer's memory and return to other tasks. The computer would busily print the jobs, while you created other documents. Other software manufacturers thought if Print could do this, why not do it with other types of applications. So the TSR was born. Soon, you could jot down notes on what to bring home for dinner or figure your entertainment budget, all without ever leaving your spreadsheet.

In actuality, TSRs don't really allow you to do more than one job at a time. They still use the same processor as other programs. The only difference is they suspend the main application while they do their work. This means even though Print was giving the illusion of doing more than one job, it really was suspending the current application for a few milliseconds, sending data to the printer and returning control to the current application. Usually it happened so quickly it

was hardly noticeable. This is similar to what most TSRs do. They suspend the main application, do their jobs, and return to the same place you left off. Hopefully, all without a hitch!

The way a TSR loads into your system is generally through the AUTOEXEC.BAT file in the root directory of your bootable drive. By doing this, the memory-resident program is always ready to go when called upon. TSRs can also be loaded from the DOS command line. Once a TSR is loaded in memory, it stays in a section of memory until activated by a certain keyboard sequence (called a hotkey). With these hotkeys, the program comes alive over your other programs. Some TSRs require a fairly large chunk of memory be set aside to remain resident. Unlike these, PC Shell requires a small kernel of memory to remain dormant. When activated, PC Shell and PC Tools Desktop save part of your computer's memory to the hard disk before loading the rest of their code. This allows them to use all the memory they need while active and yet take almost no memory from your other non-resident programs.

Can They Cause Problems?

With the advent of TSRs came a whole new set of problems. Occasionally, they can cause the system to hang or, worse yet, lose data. To be fair though, all programs can do these things. When DOS was written it was never really intended to do the things it must for TSRs. Only through careful programming can TSRs be useful products. Unfortunately, standards for writing TSRs have not been universally adapted by the industry.

Most TSRs are incredibly handy and extremely well written, but by their very nature, they may conflict with certain applications or usually each other. When this happens, problems can follow.

What Can I Do to Fix the Problem?

Generally, if you follow the manufacturer's instructions for installing the program, all works well. Sometimes, though, problems will arise. Two of the most common TSR conflicts are

- Conflicts with other TSRs
- Conflicts with applications.

Conflict with Other TSRs

If a problem arises after installing a new TSR, chances are it is conflicting with another TSR already in the system. Some symptoms of this are:

- Computer will not completely boot up (start).

- A TSR will not come up after the correct hotkeys are pressed.
- The system hangs when entering or exiting a TSR.

As with any problem, you will need to put on your detective hat and dig into the cause.

The installation manual for your software (especially TSRs) should inform you if the AUTOEXEC.BAT file was changed to accommodate the new program. If the file was changed, the placement for the new TSR may conflict with another existing TSR. The loading order is critical for some memory-resident programs. The steps you can follow to correct this problem are the following:

1. Load your AUTOEXEC.BAT file into a text editor, like Notepads, PC Shell's word processor, or Edlin. The AUTOEXEC.BAT is a text file and is easily read and edited.
2. Compare the file with the following suggested loading-order guideline:
 - DOS internal commands (path, prompt, echo off, etc.)
 - DOS external commands (mode, print, keyb, etc.)
 - Network drivers
 - Mouse commands
 - Print spoolers
 - Mirror
 - PC-Cache
 - Keyboard enhancement programs (Superkey, Prokey, etc.)
 - Anything that doesn't fit the other categories
 - PC Shell
 - PC Tools Desktop
 - Menu or shell programs (1DIRplus, Xtree, Direct Access, etc.)

Note: In some cases, print spoolers need to be loaded before DOS print. If you still have difficulties, try reversing their loading order.

3. If changing the loading order doesn't help, then you will need to find out which programs are conflicting with each other. To do this, boot from a master DOS disk in drive A and move to drive C. This will clear out any memory-resident programs and allow you to start with a clean slate.
4. Start typing each line from your AUTOEXEC.BAT file, one line at a time. Don't forget to set the path statement. It should be one of the first lines in your file. After loading in a TSR, test it. If it works fine, go on to the next line. Through this process of addition and testing, you should find out which programs are conflicting.
5. The fix may be as simple as changing the loading order of the conflicting programs. It may also be that the programs are conflicting because they both use the same hotkey setup. If so, refer to the program's manual for changing the hotkey setup for better compatibility.

Conflict with Applications

If the TSR you are using will not pop up over your current program or will not correctly return you to this program, the TSR may simply not be compatible with that particular program. Here are some common problems:

Graphics Mode: Some programs are designed to run in graphics mode. If an application is running in graphics mode and the TSR does not support graphics, the screen may fill with garbage characters or just refuse to come up at all. To solve this problem, see if the program can be run in text mode. If it can, and this is acceptable to you, then you can use your TSRs from inside your programs running in text mode.

EGA graphic cards can be another source of problems. A TSR cannot read the current video settings, as many of the EGA's registers are write-only. This doesn't cause problems while running the TSR, but when the TSR tries to restore the video display to the state it was in before the TSR was activated, it doesn't have all the information it needs, so it makes a best-guess. Often it will guess correctly and the screen will be returned properly. Sometimes, especially if several different colors were used, the color may be wrong. The solution to

this problem is to run your EGA graphics program in black-and-white mode, or to not use your TSR while it is running.

Memory: The other common problem with TSRs and applications is an error due to the lack of memory. Remember, TSRs do allocate a piece of memory to do their job. The more TSRs you use, the more memory you take away from other applications. Large databases and spreadsheets need almost all available memory to run. If you receive an error that indicates you do not have enough available memory to run the application, you may need to remove some of the TSRs in your AUTOEXEC.BAT file to free up enough memory to run a particular application.

Both PC Shell and PC Tools Desktop use a virtual memory scheme to minimize memory usage when not active. When activated, they swap out allocated memory to files on the hard disk. This allows them to utilize large portions of system memory to perform their functions. When finished, they carefully restore the computer's memory information, leaving no trace of ever being activated. What all this means to you is PC Shell and PC Tools Desktop only tie up a small amount of memory when inactive. Once activated, they both take full advantage of available system memory to perform their functions quickly and efficiently.

Hotkey Conflict: The same keystrokes the TSR is using to activate itself may also be used to perform a function in your underlying program. The best fix is to change the hotkey setup for the TSR. Both PC Shell and PC Tools Desktop have this capability. If changing the hotkey setup is not available in the TSR you are using, then the application may have the ability to change its keystrokes.

Now What?

If all else fails, give the manufacturer's technical support group a call. They can generally help with loading-order problems and the like. It is also important to software manufacturers to know which programs are causing conflicts, so they may be addressed in a later version, if possible.

This information was intended to answer some questions on TSRs and save you a phone call to technical support. At the very least, it may give you better ideas on where to look for a solution when problems arise.

Appendix B

Technical Support

Central Point Software is backed up by a technical support staff trained to provide you with fast, courteous service. If you need assistance beyond what the manual, Help feature, and README.TXT file can provide, please write or call us with the information listed in the Technical Support Checklist below.

Mail

Write to Central Point Software, Inc.
15220 NW Greenbrier Pkwy., Suite 200
Beaverton, OR 97006
Attn: Technical Support

Fax

You can also FAX the information about your problem.
Our FAX number : (503) 690-7133

Phone

(503) 690-8080

Our business hours are 6 am - 5 pm PST, Monday-Friday.

It would help if you called from a phone next to the computer you're having problems with. Your computer should be turned on and ready to go.

Additional PC Tools Desktop information

For information on last-minute changes to the program that was not included in the manual, read the README.TXT file (if one is included). Reviewing this information ensures that you have the most current information possible about the programs.

New Bulletin Board System

For the latest PC Tools Deluxe updates and new information, dial into our new BBS. You can also leave a message for Technical Support. The phone number is (503) 690-6650.

CPS Bulletin Board Script File

There is a script file for logging on to Central Point's BBS, CPS.SCR, that can be used to access the BBS using PC Tools Desktop Telecommunications. The first time that you use the BBS you will need to log on manually (without the script file) to get your user name and password. After you have them, put them in the indicated positions in the script file. Then you can select the entry in PHONE.TEL to automatically sign on to our BBS and get the latest news from the company.

Technical Support Checklist

Before contacting Central Point Software for technical assistance, please try to recreate the problem to provide us with an exact sequence of events. If the problem reoccurs, contact us by mail, FAX, or phone with the following information:

- ☐ 1. Central Point Software product: the name, version #, and file* date of the application you are having difficulty with.

*For example, PCBACKUP.EXE 1-19-90 can be found by typing DIR on the program disk or using PC Shell's More File Info command.
- ☐ 2. System Information: valuable information about your computer system can be easily obtained by using PC Shell's System Info command on the Special pull-down menu. Please include this information, along with the computer brand and model, in your written correspondence or have it accessible when contacting us by phone.
- ☐ 3. Disk drives: the brand names, sizes, partition sizes, and partitioning software.
- ☐ 4. Additional hardware: the brand names of additional hardware installed in your computer (particularly specialty video cards, expanded memory boards, turbo boards, etc.).

- ☐ 5. Resident programs: if you had memory-resident programs loaded (other than PC Tools Deluxe applications) when the problem occurred, please provide a list of them and their version numbers. Also, please *Appendix A* of this manual for useful information about memory-resident programs.
- ☐ 6. AUTOEXEC.BAT and CONFIG.SYS contents: Type "TYPE C:\autoexec.bat" or "TYPE C:\config.sys". The contents of these files can also be viewed with PC Tools Desktop's Notepads.
- ☐ 7. Errors: Write down the exact wording of any error messages received from the Central Point Software product, DOS "CHKDSK," or Diskfix.

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Where to Reach Us

If you are calling from the United States or Canada:

If you want to contact us, our US offices are located at the following address.

Central Point Software, Inc.
15220 NW Greenbrier Pkwy., Suite 200
Beaverton, OR 97006

Technical Support: (503) 690-8080
6 am - 5 pm PST

Technical Support Fax: (503) 690-7133
24 hours

Bulletin Board System: (503) 690-6650
24 hours

Automated Order: 1-800-888-8199
24 hours

Sales and Information: (800) 888-8199
7 am - 5 pm PST

Dealer Inquiries: (503) 690-8095
8 am - 5 pm PST

Customer Order Fax: (503) 690-5187
24 hours

Customer Service/Update Orders:
800) 888-8199 7 am - 5 pm PST

If you are calling from Europe:

Our London office is located at the following address. The business hours are 9:00 AM to 6:00 PM (UK time) Monday through Friday:

Central Point Software Europe Ltd.
Cardinal Point
Newall Road
Heathrow TW6 2EX United Kingdom

If you are calling from Europe

Fax: 44-1-759-7868

Phone: 44-1-897-3435 (24-hour phone)

Tech Support Hotline: 44-1-759-7848

If you are calling from the UK

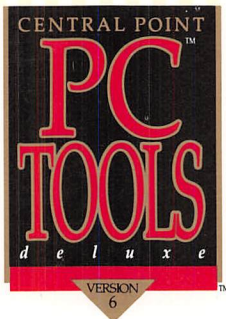
Fax: 01-759-7868

Phone: 01-897-3435 (24-hour phone)

Tech Support Hotline: 01-759-7848

Hours for tech support: 9:00 AM to 6:00 PM UK time

PC TOOLS Deluxe™ Version 6 DESKTOP MANAGER



PC Tools Deluxe brings you the easiest to learn and use desktop manager available—at any price. All of PC Tools' products feature full mouse support, pull-down menus and a windowed environment that works with all IBM PCs, PS/2s, and 100% compatibles. This PC Tools package features:

FAX BOARD SUPPORT. Use a fax board (Intel, Spectra, or GammaFax) to send/receive faxes at any time. Supports networks.

NOTEPADS. Includes spell checker and block editing.

DATABASE. dBASE file-compatible, with indexing, mail merge, and append.

TELECOMMUNICATIONS. Send faxes, telexes, and e-mail through services such as MCI, Compuserve, and EasyLink. Powerful and flexible; add other services. Can run in background.

CUT AND PASTE. Capture work from your screen and "paste" it into a different program.

OUTLINER. Create structured outlines for reports.

APPOINTMENT SCHEDULER. Plan and prioritize your schedule; automatically schedule program execution (backups, fax and e-mail transmissions, etc.).

MACRO EDITOR. Record and replay keystrokes.

CALCULATORS. HP-11C scientific, HP-12C financial, HP-16C programmer's, and algebraic calculators.

REQUIREMENTS: IBM PC, XT, AT, PS/2 or 100% compatible with DOS 3.0 or higher and 512KB RAM. Hard disk recommended. Supports Microsoft mouse driver version 6.14 or higher, Logitech/Dexxa mouse drivers version 3.4X or higher, or 100% compatible.

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